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GEOPHYSICAL DATA FROM DRIFTING ICE STATION FRAM III. (U)

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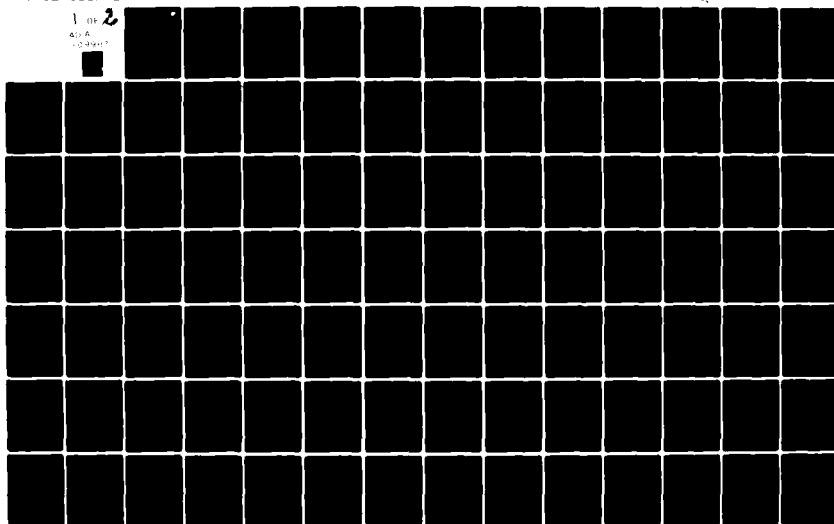
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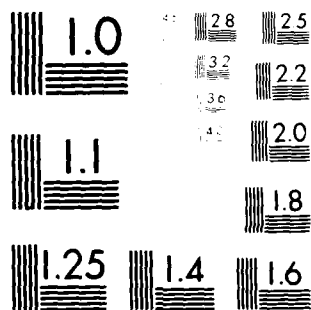
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NATIONAL BUREAU OF STANDARDS-1963-A

**GEOFYSICAL DATA**

**FROM DRIFTING ICE STATION**

**FRAM III**



by Kenneth Hunkins, T. O. Manley, Werner Tiemann and Ruth Jackson

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**CU-3-81 TECHNICAL REPORT No. 3**

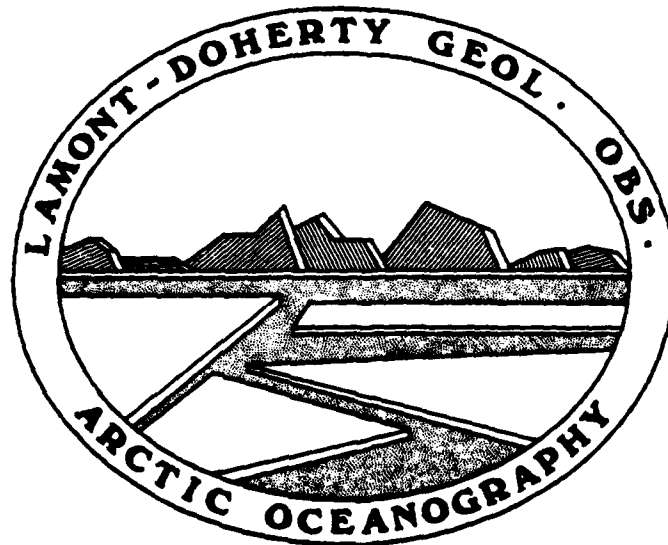
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FROM  
DRIFTING ICE STATION  
FRAM III

prepared by  
Kenneth Hunkins, T.O. Manley, Werner Tiemann and Ruth Jackson

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Lamont-Doherty Geological Observatory of Columbia University  
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December, 1981

Abstract

→ A scientific research camp was established on a drifting ice floe north of Spitsbergen on March 14, 1981, and occupied until May 13, 1981, while the floe drifted 361 km southwestward. Position of the camp was monitored with a satellite navigation system. Ocean depth was sounded continuously during the drift as the camp crossed from the Fram Basin onto the Yermak Plateau. Rotation of the ice floe, magnetic declination and gravity were all measured frequently. Sub-bottom geological horizons were profiled with an air-gun and seismic reflection system. Data from all of these measurements are presented in the form of tables and profiles.



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## Introduction

The deep Arctic Ocean north of Greenland and Svalbard was first explored by the Norwegian North Polar Expedition with the ship Fram in 1893-6, under the leadership of Fridtjof Nansen. Although the region has been studied by Soviet scientists in the years since, there has been little exploration by other nations. The area is of special interest to geophysicists since it is crossed by the global mid-ocean ridge system and to oceanographers because the major exchange of water between the Arctic and Atlantic Oceans occurs through the Greenland-Spitsbergen Strait.

In order to improve scientific understanding of this region, a series of springtime expeditions based at drifting ice floe camps was inaugurated in 1979 with Fram I. An international group from the USA, Norway, Canada and Denmark conducted geophysical and oceanographic studies at that station. In the following year on Fram II, an acoustic program was conducted by U.S. scientists. The series continued in 1981 with Fram III, the subject of this report, and will conclude in 1982 with Fram IV. Figure 1 shows the drift tracks of Fram I, II and III in relationship to the northeast coast of Greenland and the local bottom topography.

All of the Fram camps have relied on Twin Otter and Tri-turbo 3 aircraft for establishment, movement of people, and supply of all items except fuel and explosives, which

were dropped by parachute from U.S. Air Force C-130 aircraft. An essential part of each operation has been a Bell 204 helicopter and crew which have remained at the camp throughout its duration to provide scientific and logistic support.

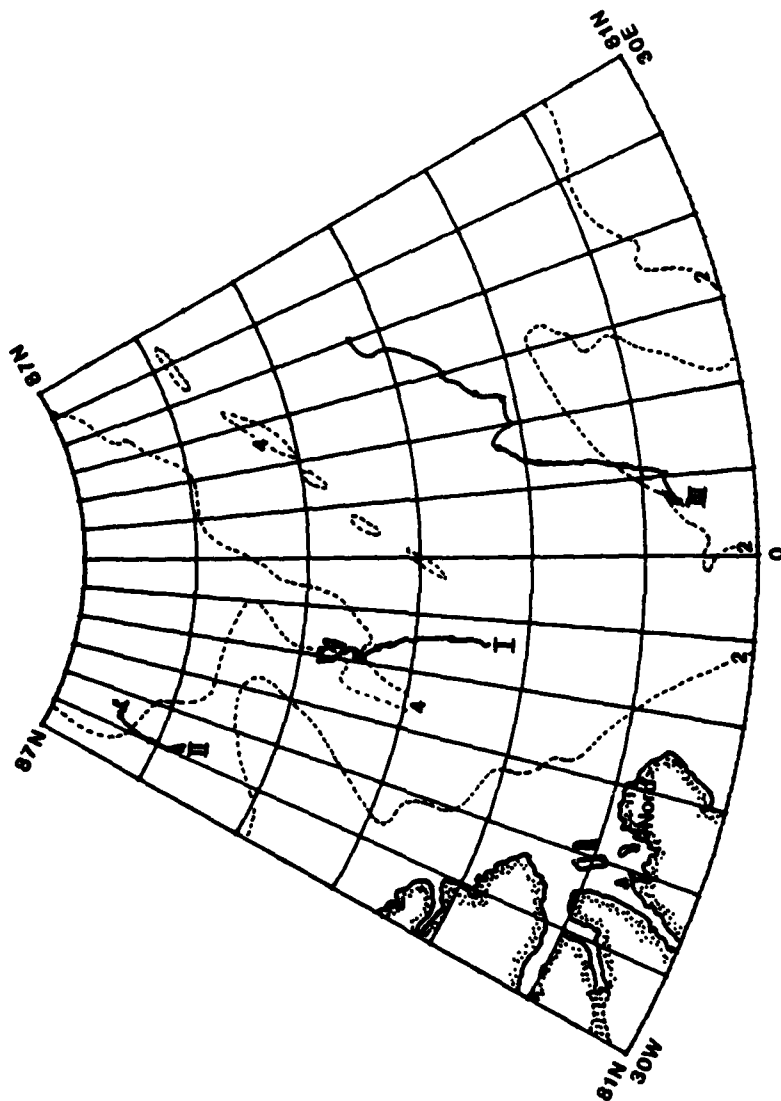


Figure 1 - Drift tracks of Fram I, II, and III in relation to the northeast coast of Greenland and local bottom topography. Roman numerals at the end of each drift track denote the various Fram expeditions. Dashed lines are depth contours. Depths are given in km.

### Fram III

The camp was established on March 14, 1981, at 84°17'N 20°04'E. Fram III was located on an exceptionally large old polar floe measuring about 5 km by 3 km and 4 m in thickness. The initial party consisted of Jay Ardai and Al Heilscher. By the first of April, most of the scientific programs were underway and they continued until May 8th. Camp evacuation was completed by May 13th, after having drifted a net distance of 361 km (195 nautical miles) to the southwest at a rate of 5.9 km/day (3 1/4 nautical miles/day). A beacon left on the floe by the Polar Research Laboratory continued to provide the station location via satellite telemetry after evacuation. The last signals were received on August 25, 1981, from latitude 67½° in Denmark Strait where the floe apparently disintegrated.

### Scientific Programs

The institutions, involved in scientific programs on Fram III, their sampling and observational programs, and their personnel were as follows:

#### Lamont-Doherty Geological Observatory:

- 1) Navigation, bathymetry, station azimuth and gravity.
- 2) Station oceanography; oceanographic casts to bottom at Fram III with Neil-Brown conductivity-temperature-depth (CTD) sensor, tethered

Aanderaa current meters.

- 3) Helicopter oceanographic survey with light-weight portable CTD.

- 4) Underwater acoustics.

(Kenneth Hunkins, Tom Manley, Jay Ardai,  
Allan Gill, Charlie Monjo)

Atlantic Geoscience Centre:

- 1) Seismic reflection with sparker.
- 2) Seismic refraction.
- 3) Ocean-bottom heat flow and coring.

(Ruth Jackson and Don Locke)

Bedford Institute of Oceanography:

- 1) Geochemical sampling of the water column and sea ice.

(Peter Jones and Frank Zemlyak)

Bigelow Laboratory for Ocean Sciences:

- 1) Biogeochemical sampling and analysis.

(Lou Codispoti and Ted Packard)

University of Miami:

- 1) Tritium and radiocarbon sampling.

(Valerie Lee)

Polar Science Center, University of Washington:

- 1) Oceanographic profiling, current measurements, oceanographic buoys.
- 2) Meteorology and floe rotation.

(James Morison and Roger Anderson)

**Scott Polar Institute, Cambridge, England:**

- 1) Ice strain and wave propagation.

(Stuart Moore)

**Polar Research Laboratory**

- 1) Remote meteorological and oceanographic buoys.

- 2) Ambient acoustics.

(Sam Burke and Charlie Greene)

### Navigation

All positions at Fram III were determined using the U.S. Navy Transit satellite navigation system. Transit satellites circle the earth in 107-minute polar orbits at an altitude of approximately 100 km. Each satellite continuously transmits position data as a function of time. By measuring the change in the Doppler frequency of the received signals as the satellite approaches, passes, and recedes, the position of the station relative to the satellite's path can be determined with great precision. The number of satellite passes at a given site over a given time will be greatest at the poles. In the Arctic the interval between fixes is therefore short.

The fixes at Fram III were determined with a Magnavox MX 1502 satellite navigation set, which is a rugged, portable, nearly automatic navigation system, introduced in 1977. The fixes and associated information were printed out automatically, in real time, on a teletypewriter. These data were also stored on magnetic tape cassettes and displayed visually.

Fixes calculated with the MX 1502 sets are based on the World Geodetic System-1972 coordinates. "Standard deviations" in latitude and longitude based on Doppler data residuals are calculated automatically by the 1502 for each fix. All fixes with "standard deviations" greater

than 41 m in latitude and 59 m in longitude were eliminated from the data set. These cutoff values were arrived at by calculating the mean and standard deviation of the "Standard deviations" for all fixes of each instrument separately. All fixes with "standard deviations" greater than the mean plus one standard deviation were eliminated in two successive trials.

A Kalman filtering technique was used on the Fram III navigation data set. The main purpose of the filter was to smooth the track and provide fixes at evenly-spaced time intervals of one hour. In addition, ice velocities were computed at the same evenly-spaced intervals. More detail on the Kalman filtering techniques for irregularly-spaced data sets is given in Thorndike and Manley (1980). Removal of oscillations in the ice motion with periods greater than that of the inertial period was estimated to be less than 5 per cent.



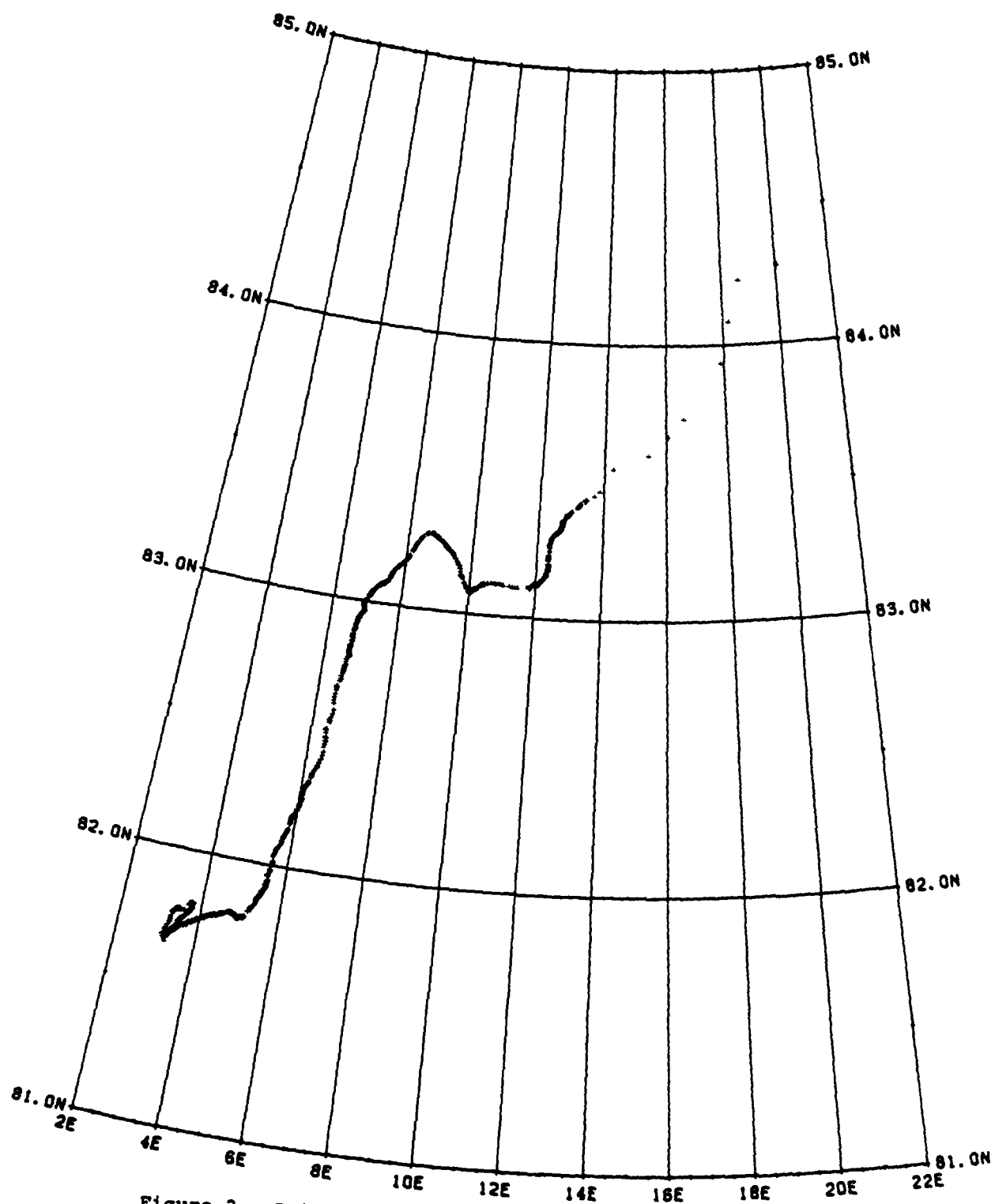


Figure 2 - Drift track of Fram III based on original fixes.

POSITIONS OF FRAM III  
DETERMINED BY SATELLITE NAVIGATION

Key to Column Headings:

SN	Serial number of satellite receiver unit
DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
LATITUDE	North latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
EL	Maximum elevation of satellite above horizon in degrees
I	Number of iterations in the computation
DP	Number of 23/28 - second Doppler counts
SAT	Last three digits of satellite identification number
STDY	Standard deviation of latitude in meters
STDX	Standard deviation of longitude in meters

## FRAM 3

## NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDY
30	14	MAR	1981	0	84.283333	20.066668	55	3	30	190	0.0	0.0
30	15	MAR	1981	0	84.233333	18.616667	55	3	30	190	0.0	0.0
30	16	MAR	1981	0	84.083333	18.200001	55	3	30	190	0.0	0.0
30	17	MAR	1981	0	83.933333	17.900000	55	3	30	190	0.0	0.0
30	18	MAR	1981	0	83.733333	16.583334	55	3	30	190	0.0	0.0
30	19	MAR	1981	0	83.666666	16.049999	55	3	30	190	0.0	0.0
30	20	MAR	1981	0	83.599999	15.416667	55	3	30	190	0.0	0.0
30	21	MAR	1981	2214	83.550003	14.283334	55	3	30	190	0.0	0.0
30	22	MAR	1981	2214	83.466667	13.866667	55	3	30	190	0.0	0.0
30	23	MAR	1981	704	83.449997	13.700000	55	3	30	190	0.0	0.0
30	23	MAR	1981	1733	83.437027	13.443808	47	3	30	140	32.0	19.0
30	23	MAR	1981	1817	83.436050	13.422142	67	2	33	200	39.0	51.0
30	23	MAR	1981	1842	83.435135	13.421053	60	2	33	110	39.0	40.0
30	23	MAR	1981	1919	83.433823	13.406252	52	3	31	140	27.0	22.0
30	23	MAR	1981	1941	83.432312	13.413378	69	3	31	190	40.0	54.0
30	24	MAR	1981	3	83.422791	13.285160	36	2	28	110	31.0	38.0
30	24	MAR	1981	120	83.419464	13.255629	53	3	27	200	41.0	30.0
30	24	MAR	1981	151	83.417786	13.244380	54	2	25	110	29.0	29.0
30	24	MAR	1981	339	83.413696	13.209808	51	3	22	110	40.0	29.0
30	24	MAR	1981	414	83.412506	13.189365	54	3	19	140	40.0	37.0
30	24	MAR	1981	527	83.409607	13.166996	54	3	31	110	34.0	24.0
30	24	MAR	1981	714	83.405014	13.122454	65	3	28	110	30.0	38.0
30	24	MAR	1981	1235	83.391968	13.001511	60	3	30	110	38.0	38.0
30	24	MAR	1981	1310	83.390381	12.993412	63	3	32	140	28.0	39.0
30	24	MAR	1981	1330	83.390686	12.981352	56	3	30	190	40.0	33.0
30	24	MAR	1981	1456	83.387192	12.963881	51	3	34	140	28.0	21.0
30	24	MAR	1981	1518	83.386963	12.956432	67	3	27	190	34.0	57.0
30	24	MAR	1981	1608	83.385696	12.948120	50	3	29	110	38.0	21.0
30	24	MAR	1981	1642	83.384659	12.943579	47	3	31	140	31.0	19.0
30	24	MAR	1981	1754	83.383942	12.929432	55	3	27	110	40.0	32.0
30	24	MAR	1981	1827	83.382965	12.920780	48	3	30	140	32.0	21.0
30	24	MAR	1981	1940	83.382217	12.908253	67	3	30	110	38.0	57.0
30	24	MAR	1981	2013	83.381775	12.905045	57	3	26	140	30.0	37.0
30	24	MAR	1981	2314	83.377319	12.868294	73	3	33	110	28.0	53.0
30	25	MAR	1981	11	83.376694	12.860004	54	3	18	190	40.0	23.0
30	25	MAR	1981	102	83.374649	12.864233	58	3	30	110	36.0	35.0
30	25	MAR	1981	134	83.373947	12.858967	69	3	28	140	34.0	45.0
30	25	MAR	1981	250	83.372696	12.860889	51	3	32	110	38.0	24.0
30	25	MAR	1981	321	83.372665	12.857306	57	3	34	140	28.0	19.0
30	25	MAR	1981	437	83.371979	12.853874	51	3	34	110	26.0	16.0
30	25	MAR	1981	508	83.372055	12.849386	53	3	26	140	31.0	18.0
30	25	MAR	1981	625	83.371689	12.842573	59	3	29	110	29.0	27.0
30	25	MAR	1981	844	83.369888	12.824499	69	3	29	140	36.0	41.0
30	25	MAR	1981	2322	83.361572	12.774349	53	3	33	190	38.0	19.0
30	26	MAR	1981	12	83.361130	12.769293	63	3	27	110	28.0	39.0
30	26	MAR	1981	41	83.360031	12.761487	75	3	28	140	30.0	57.0
30	26	MAR	1981	108	83.359726	12.764145	56	3	37	190	35.0	22.0
30	26	MAR	1981	200	83.359131	12.757801	53	3	35	110	40.0	28.0
30	26	MAR	1981	228	83.358765	12.754074	60	3	27	140	33.0	30.0
30	26	MAR	1981	348	83.358292	12.755161	51	3	34	110	27.0	16.0
30	26	MAR	1981	416	83.358154	12.750877	54	3	33	140	30.0	17.0
30	26	MAR	1981	536	83.358521	12.753218	55	3	35	110	26.0	19.0
30	26	MAR	1981	604	83.358276	12.751490	55	3	32	140	34.0	20.0
30	26	MAR	1981	724	83.358780	12.750044	67	3	35	110	24.0	35.0
30	26	MAR	1981	815	83.357895	12.739231	62	3	30	190	37.0	42.0
30	26	MAR	1981	1003	83.357559	12.737322	54	3	36	190	35.0	24.0
30	26	MAR	1981	1151	83.356674	12.729881	52	3	34	190	37.0	21.0
30	26	MAR	1981	1244	83.356232	12.740915	58	3	34	110	33.0	30.0
30	26	MAR	1981	1310	83.356094	12.743650	53	3	28	200	39.0	26.0
30	26	MAR	1981	1338	83.355225	12.733198	57	3	30	190	35.0	25.0
30	26	MAR	1981	1430	83.354935	12.739532	51	3	33	110	30.0	18.0
30	26	MAR	1981	1455	83.354187	12.745687	51	3	29	200	39.0	21.0
30	26	MAR	1981	1526	83.354568	12.730875	69	3	29	190	34.0	51.0
30	26	MAR	1981	1639	83.354294	12.736389	57	3	34	200	32.0	25.0
30	26	MAR	1981	1803	83.353836	12.738419	56	3	32	110	28.0	23.0
30	26	MAR	1981	2046	83.354141	12.736406	60	3	28	190	39.0	35.0
30	26	MAR	1981	2232	83.353455	12.734734	54	3	33	190	38.0	21.0
30	26	MAR	1981	2323	83.352844	12.726416	70	3	36	110	25.0	42.0

## FRAM 3

## NAVIGATION - ORIGINAL

SN	DAY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	27	MAR	1981	18	83.352158	12.733683	54	3	35	190	37.0	21.0
30	27	MAR	1981	111	83.351563	12.723219	57	3	34	110	29.0	24.0
30	27	MAR	1981	259	83.350296	12.722883	51	3	34	110	27.0	17.0
30	27	MAR	1981	323	83.350098	12.725887	56	3	34	140	28.0	18.0
30	27	MAR	1981	447	83.349472	12.723867	52	3	33	110	26.0	17.0
30	27	MAR	1981	511	83.349594	12.724558	53	3	32	140	36.0	21.0
30	27	MAR	1981	634	83.349838	12.727476	61	3	34	110	29.0	29.0
30	27	MAR	1981	658	83.349442	12.727077	58	3	28	140	38.0	23.0
30	27	MAR	1981	725	83.349518	12.730276	68	3	29	190	29.0	48.0
30	27	MAR	1981	913	83.349915	12.726156	56	3	27	190	34.0	35.0
30	27	MAR	1981	1101	83.348862	12.725847	52	3	36	190	28.0	17.0
30	27	MAR	1981	1156	83.347809	12.726885	64	3	30	110	32.0	38.0
30	27	MAR	1981	1220	83.347549	12.728413	69	3	34	140	24.0	50.0
30	27	MAR	1981	1249	83.347275	12.729034	54	3	36	190	24.0	16.0
30	27	MAR	1981	1342	83.346603	12.724598	53	3	32	110	31.0	22.0
30	27	MAR	1981	1406	83.345871	12.726139	55	3	33	140	27.0	25.0
30	27	MAR	1981	1436	83.345535	12.727013	63	3	35	190	29.0	30.0
30	27	MAR	1981	1528	83.345337	12.725376	50	3	32	110	32.0	18.0
30	27	MAR	1981	1552	83.344696	12.725037	48	3	33	140	29.0	18.0
30	27	MAR	1981	1738	83.343933	12.726650	47	3	33	140	24.0	15.0
30	27	MAR	1981	1924	83.343277	12.727016	53	3	34	140	32.0	27.0
30	27	MAR	1981	1957	83.342682	12.725067	65	3	35	190	33.0	38.0
30	27	MAR	1981	2110	83.343124	12.726072	66	3	33	140	26.0	44.0
30	27	MAR	1981	2144	83.342255	12.717928	56	3	36	190	29.0	17.0
30	27	MAR	1981	2330	83.341400	12.715727	53	3	37	190	30.0	15.0
30	28	MAR	1981	22	83.341080	12.717283	61	4	29	110	36.0	35.0
30	28	MAR	1981	43	83.340668	12.712816	74	3	35	140	26.0	45.0
30	28	MAR	1981	116	83.340195	12.711365	57	3	36	190	33.0	23.0
30	28	MAR	1981	206	83.339233	12.719746	51	3	23	200	40.0	30.0
30	28	MAR	1981	302	83.338318	12.709290	68	3	37	190	39.0	53.0
30	28	MAR	1981	418	83.337463	12.708878	54	3	25	140	33.0	20.0
30	28	MAR	1981	538	83.336105	12.709019	62	3	32	200	32.0	34.0
30	28	MAR	1981	606	83.336212	12.708027	55	3	30	140	33.0	20.0
30	28	MAR	1981	823	83.336304	12.707949	60	3	34	190	31.0	29.0
30	28	MAR	1981	1011	83.336060	12.708809	53	3	33	190	34.0	23.0
30	28	MAR	1981	1159	83.334549	12.702572	52	3	32	190	36.0	21.0
30	28	MAR	1981	1347	83.3331490	12.697905	59	4	36	190	28.0	23.0
30	28	MAR	1981	1424	83.3331390	12.691656	51	3	31	200	34.0	19.0
30	28	MAR	1981	1500	83.3330154	12.694723	50	3	32	140	31.0	22.0
30	28	MAR	1981	1534	83.329620	12.691463	72	3	32	190	26.0	50.0
30	28	MAR	1981	1609	83.329178	12.691601	55	3	32	200	36.0	25.0
30	28	MAR	1981	1646	83.328323	12.686022	46	3	32	140	33.0	19.0
30	28	MAR	1981	1754	83.327332	12.687353	65	3	26	200	35.0	43.0
30	28	MAR	1981	1832	83.326523	12.680050	49	3	27	140	31.0	25.0
30	28	MAR	1981	1958	83.325592	12.683979	72	3	33	110	26.0	57.0
30	28	MAR	1981	2018	83.325378	12.677576	59	3	32	140	24.0	28.0
30	28	MAR	1981	2054	83.324326	12.672659	59	3	34	190	37.0	27.0
30	28	MAR	1981	2310	83.322617	12.653885	61	3	29	200	35.0	42.0
30	28	MAR	1981	2332	83.322525	12.649801	67	4	34	110	22.0	32.0
30	29	MAR	1981	26	83.321259	12.650972	55	3	35	190	25.0	15.0
30	29	MAR	1981	57	83.321411	12.647409	52	3	25	200	37.0	28.0
30	29	MAR	1981	120	83.320618	12.637543	53	3	30	110	25.0	20.0
30	29	MAR	1981	213	83.319550	12.633986	63	3	35	190	33.0	32.0
30	29	MAR	1981	244	83.319534	12.621988	50	3	35	200	35.0	21.0
30	29	MAR	1981	308	83.318954	12.621838	50	3	32	110	28.0	18.0
30	29	MAR	1981	430	83.317764	12.609587	55	3	34	200	30.0	24.0
30	29	MAR	1981	456	83.317627	12.604977	53	3	35	110	28.0	19.0
30	29	MAR	1981	616	83.316612	12.592072	68	3	33	200	27.0	41.0
30	29	MAR	1981	644	83.316360	12.586052	63	3	32	110	26.0	28.0
30	29	MAR	1981	734	83.315933	12.570250	66	3	38	190	28.0	36.0
30	29	MAR	1981	921	83.315002	12.554308	55	3	29	190	37.0	27.0
30	29	MAR	1981	1109	83.313202	12.529255	52	3	34	190	27.0	16.0
30	29	MAR	1981	1132	83.311798	12.532064	54	3	36	200	35.0	31.0
30	29	MAR	1981	1205	83.311245	12.522660	61	3	34	110	26.0	29.0
30	29	MAR	1981	1257	83.310379	12.506824	55	3	33	190	28.0	18.0
30	29	MAR	1981	1317	83.309143	12.506868	52	3	33	200	38.0	22.0
30	29	MAR	1981	1351	83.308273	12.496542	52	3	33	110	32.0	20.0
30	29	MAR	1981	1444	83.306656	12.479038	65	3	38	190	30.0	37.0

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## NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	29	MAR	1981	1537	83.304672	12.469625	49	3	33	110	24.0	13.0
30	29	MAR	1981	1723	83.301086	12.449600	54	3	34	110	28.0	20.0
30	29	MAR	1981	1740	83.300156	12.451761	47	3	39	140	33.0	22.0
30	29	MAR	1981	1910	83.297241	12.437609	65	3	35	110	25.0	34.0
30	29	MAR	1981	2005	83.293991	12.431265	83	3	34	190	38.0	41.0
30	29	MAR	1981	2243	83.289536	12.397020	75	3	35	110	23.0	52.0
30	29	MAR	1981	2338	83.287445	12.406960	53	3	34	190	40.0	20.0
30	30	MAR	1981	31	83.286484	12.389132	59	3	35	110	26.0	25.0
30	30	MAR	1981	124	83.284378	12.395918	58	3	36	190	32.0	23.0
30	30	MAR	1981	219	83.282867	12.381584	51	3	34	110	27.0	17.0
30	30	MAR	1981	310	83.281219	12.395452	70	3	34	190	35.0	57.0
30	30	MAR	1981	406	83.279160	12.376373	51	3	34	110	26.0	16.0
30	30	MAR	1981	554	83.275558	12.374187	57	3	33	110	29.0	24.0
30	30	MAR	1981	644	83.273697	12.364269	72	3	34	190	23.0	47.0
30	30	MAR	1981	742	83.272156	12.369259	72	3	36	110	23.0	44.0
30	30	MAR	1981	831	83.270401	12.370291	59	3	35	190	26.0	23.0
30	30	MAR	1981	1019	83.267014	12.369205	52	3	38	190	33.0	19.0
30	30	MAR	1981	1116	83.264938	12.384993	68	3	34	110	34.0	53.0
30	30	MAR	1981	1302	83.260666	12.382158	55	3	34	110	33.0	25.0
30	30	MAR	1981	1634	83.250946	12.380701	51	3	32	110	30.0	20.0
30	30	MAR	1981	1821	83.246475	12.380451	59	3	30	110	35.0	29.0
30	30	MAR	1981	2240	83.233368	12.360744	63	3	30	200	39.0	40.0
30	30	MAR	1981	2342	83.231293	12.357054	65	3	30	110	24.0	30.0
30	31	MAR	1981	129	83.226883	12.356361	53	3	35	110	30.0	22.0
30	31	MAR	1981	213	83.224960	12.355211	50	3	30	200	34.0	21.0
30	31	MAR	1981	317	83.222107	12.352777	50	3	34	110	24.0	15.0
30	31	MAR	1981	359	83.220215	12.350849	53	3	35	200	33.0	24.0
30	31	MAR	1981	505	83.217499	12.348034	53	3	32	110	30.0	22.0
30	31	MAR	1981	653	83.212921	12.343115	65	3	36	110	21.0	25.0
30	31	MAR	1981	1214	83.202087	12.361732	59	3	31	110	26.0	26.0
30	31	MAR	1981	1305	83.200394	12.356291	56	3	37	190	26.0	18.0
30	31	MAR	1981	1400	83.198822	12.358641	51	3	31	110	39.0	26.0
30	31	MAR	1981	1431	83.197815	12.360245	50	3	34	200	38.0	20.0
30	31	MAR	1981	1453	83.196442	12.353331	67	3	35	190	39.0	25.0
30	31	MAR	1981	1546	83.194702	12.363619	49	3	38	110	39.0	21.0
30	31	MAR	1981	1616	83.193893	12.357641	55	3	30	200	39.0	28.0
30	31	MAR	1981	1732	83.190536	12.356321	54	3	33	110	33.0	26.0
30	31	MAR	1981	1801	83.190002	12.363297	67	4	32	200	40.0	53.0
30	31	MAR	1981	1918	83.186447	12.353701	67	4	34	110	29.0	45.0
30	31	MAR	1981	2013	83.183563	12.346018	61	4	37	190	33.0	30.0
30	31	MAR	1981	2200	83.180557	12.338741	54	3	37	190	33.0	17.0
30	31	MAR	1981	2252	83.179764	12.315844	72	3	35	110	26.0	48.0
30	31	MAR	1981	2318	83.178635	12.330774	58	3	34	200	31.0	29.0
30	31	MAR	1981	2346	83.177780	12.334892	53	3	36	190	33.0	17.0
30	1	APR	1981	40	83.176941	12.328257	57	3	35	110	23.0	19.0
30	1	APR	1981	104	83.176208	12.325104	51	3	38	200	39.0	26.0
30	1	APR	1981	132	83.175705	12.331694	59	3	31	190	28.0	26.0
30	1	APR	1981	228	83.174484	12.323978	50	3	33	110	25.0	16.0
30	1	APR	1981	416	83.171387	12.315584	51	3	31	110	24.0	16.0
30	1	APR	1981	604	83.168930	12.305952	59	3	30	110	33.0	31.0
30	1	APR	1981	652	83.167816	12.299547	69	3	32	190	23.0	38.0
30	1	APR	1981	751	83.166458	12.293758	75	4	35	110	23.0	53.0
30	1	APR	1981	840	83.165176	12.293062	57	3	31	190	29.0	26.0
30	1	APR	1981	1027	83.163513	12.290081	52	3	36	190	27.0	16.0
30	1	APR	1981	1125	83.163254	12.292068	65	4	38	110	29.0	43.0
30	1	APR	1981	1215	83.162277	12.290009	53	3	34	190	33.0	21.0
30	1	APR	1981	1312	83.161224	12.291910	53	3	30	110	30.0	22.0
30	1	APR	1981	1403	83.160263	12.284912	61	3	34	190	32.0	29.0
30	1	APR	1981	1458	83.159073	12.288057	49	3	37	110	34.0	20.0
30	1	APR	1981	1644	83.156189	12.274311	51	3	31	110	32.0	22.0
30	1	APR	1981	1830	83.153397	12.254677	61	3	33	110	26.0	29.0
30	1	APR	1981	1924	83.151230	12.247261	67	3	32	190	39.0	43.0
30	1	APR	1981	2256	83.145920	12.211676	53	4	35	190	39.0	19.0
30	1	APR	1981	2351	83.145554	12.199568	62	3	33	110	25.0	27.0
30	2	APR	1981	42	83.144302	12.196091	56	3	35	190	36.0	24.0
30	2	APR	1981	138	83.143997	12.189060	52	3	34	110	23.0	16.0
30	2	APR	1981	229	83.143478	12.187262	66	3	34	190	39.0	46.0
30	2	APR	1981	326	83.142212	12.176931	50	3	32	110	26.0	16.0

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## NAVIGATION - ORIGINAL

SN	UY	MON	YEAR	GRT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDZ
30	2	APR	1981	750	83.137939	12.145355	62	3	39	190	24.0	25.0
30	2	APR	1981	938	83.136475	12.140072	53	3	33	190	23.0	18.0
30	2	APR	1981	1126	83.135605	12.135737	51	3	36	190	28.0	18.0
30	2	APR	1981	1313	83.135086	12.137192	57	3	37	190	28.0	20.0
30	2	APR	1981	1501	83.134262	12.131960	69	4	35	190	24.0	37.0
30	2	APR	1981	1912	83.129715	12.102268	49	4	23	130	39.0	25.0
30	2	APR	1981	2021	83.127808	12.092396	60	3	37	190	33.0	27.0
30	2	APR	1981	2207	83.126816	12.073036	53	3	35	190	33.0	18.0
30	2	APR	1981	2244	83.126389	12.067217	53	3	18	130	26.0	24.0
30	2	APR	1981	2353	83.126495	12.052685	53	3	34	190	35.0	18.0
30	3	APR	1981	30	83.126495	12.049006	65	4	26	130	28.0	46.0
30	3	APR	1981	140	83.126511	12.035770	60	3	38	190	37.0	32.0
30	3	APR	1981	613	83.125778	11.976856	60	3	23	110	37.0	37.0
30	3	APR	1981	700	83.125473	11.959448	68	4	29	190	32.0	44.0
30	3	APR	1981	848	83.124573	11.932764	56	3	29	190	27.0	22.0
30	3	APR	1981	1036	83.123978	11.914883	51	3	31	190	37.0	22.0
30	3	APR	1981	1224	83.123642	11.906904	54	3	34	190	30.0	20.0
30	3	APR	1981	1411	83.123367	11.907175	63	3	30	190	35.0	28.0
30	3	APR	1981	1559	83.123184	11.906311	78	4	29	190	21.0	52.0
30	3	APR	1981	1932	83.119522	11.891066	65	4	28	190	37.0	41.0
30	3	APR	1981	2118	83.116760	11.883831	55	3	35	190	32.0	21.0
30	3	APR	1981	2139	83.116135	11.867178	70	4	33	200	33.0	56.0
30	4	APR	1981	2304	83.114441	11.872267	53	3	31	190	31.0	16.0
30	4	APR	1981	50	83.113571	11.872419	57	3	30	190	29.0	19.0
30	4	APR	1981	111	83.113098	11.861670	49	3	35	200	33.0	21.0
30	4	APR	1981	258	83.113037	11.864840	50	3	34	200	34.0	22.0
30	4	APR	1981	520	83.112274	11.859632	53	3	28	140	41.0	20.0
30	4	APR	1981	707	83.111511	11.850477	61	4	28	140	32.0	27.0
30	4	APR	1981	1134	83.108292	11.813513	52	3	36	190	31.0	19.0
30	4	APR	1981	1228	83.108337	11.813044	63	3	25	140	32.0	49.0
30	4	APR	1981	1322	83.108673	11.810274	58	3	33	190	35.0	29.0
30	4	APR	1981	1414	83.108887	11.811567	51	3	26	140	31.0	27.0
30	4	APR	1981	1509	83.109695	11.804884	71	4	31	190	29.0	44.0
30	4	APR	1981	1600	83.109207	11.794930	46	3	26	140	39.0	29.0
30	4	APR	1981	1746	83.108627	11.765032	48	3	28	140	28.0	19.0
30	4	APR	1981	1932	83.107254	11.716421	56	3	30	140	25.0	26.0
30	5	APR	1981	239	83.104813	11.446615	56	3	26	140	32.0	24.0
30	5	APR	1981	427	83.106339	11.373573	52	3	29	140	28.0	15.0
30	5	APR	1981	615	83.108643	11.286356	56	3	30	140	37.0	24.0
30	5	APR	1981	802	83.110977	11.199486	68	4	27	140	34.0	34.0
30	5	APR	1981	1136	83.112305	11.011843	71	4	32	140	24.0	53.0
30	5	APR	1981	1322	83.113388	10.938200	56	4	19	140	39.0	37.0
30	5	APR	1981	1508	83.113258	10.870975	48	3	23	140	31.0	24.0
30	5	APR	1981	1654	83.113892	10.798542	46	3	28	140	34.0	22.0
30	5	APR	1981	1737	83.114960	10.765217	65	4	30	200	37.0	57.0
30	5	APR	1981	1840	83.114136	10.722021	51	3	26	140	31.0	20.0
30	5	APR	1981	2026	83.114456	10.645187	63	4	28	140	34.0	47.0
30	5	APR	1981	2254	83.115097	10.546984	59	3	23	200	34.0	34.0
30	6	APR	1981	227	83.112305	10.460522	49	3	32	200	40.0	24.0
30	6	APR	1981	334	83.111984	10.437523	53	3	27	140	36.0	23.0
30	6	APR	1981	522	83.110931	10.397945	54	3	27	140	41.0	21.0
30	6	APR	1981	600	83.110016	10.386518	67	4	34	200	37.0	57.0
30	6	APR	1981	618	83.110184	10.366716	73	4	33	190	28.0	50.0
30	6	APR	1981	806	83.108215	10.329176	59	3	32	190	30.0	28.0
30	6	APR	1981	1142	83.101715	10.271122	52	3	38	190	26.0	16.0
30	6	APR	1981	1230	83.099930	10.264400	62	4	24	140	36.0	51.0
30	6	APR	1981	1330	83.099152	10.247093	59	3	38	190	25.0	22.0
30	6	APR	1981	1517	83.097549	10.229645	73	4	35	190	21.0	38.0
30	6	APR	1981	1602	83.096863	10.227402	46	3	32	140	38.0	26.0
30	6	APR	1981	1630	83.096298	10.218130	57	4	35	200	34.0	28.0
30	6	APR	1981	1851	83.093918	10.201647	70	4	33	190	38.0	50.0
30	6	APR	1981	2037	83.091721	10.172968	58	3	37	190	31.0	22.0
30	6	APR	1981	2146	83.091507	10.138607	68	4	35	200	36.0	55.0
30	6	APR	1981	2223	83.089890	10.138340	53	4	35	190	32.0	15.0
30	7	APR	1981	9	83.088562	10.120703	54	3	36	190	29.0	16.0
30	7	APR	1981	54	83.088287	10.105644	66	4	23	140	34.0	44.0
30	7	APR	1981	118	83.087860	10.110796	48	3	28	200	39.0	27.0
30	7	APR	1981	156	83.087280	10.108074	63	4	36	190	36.0	35.0

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## NAVIGATION - ORIGINAL

SN	DT	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	7	APR	1981	242	83.086950	10.100731	55	3	30	140	28.0	19.0
30	7	APR	1981	429	83.086288	10.092075	52	3	25	140	37.0	17.0
30	7	APR	1981	617	83.085327	10.077719	57	3	30	140	34.0	21.0
30	7	APR	1981	632	83.085617	10.077118	64	4	25	110	36.0	35.0
30	7	APR	1981	716	83.084274	10.064701	64	4	28	190	32.0	41.0
30	7	APR	1981	804	83.082977	10.058329	69	4	25	140	32.0	47.0
30	7	APR	1981	904	83.082413	10.052488	54	3	26	190	38.0	33.0
30	7	APR	1981	1052	83.079941	10.041224	51	3	35	190	32.0	18.0
30	7	APR	1981	1240	83.077850	10.034410	55	3	37	190	31.0	22.0
30	7	APR	1981	1428	83.077042	10.035242	66	4	34	190	27.0	30.0
30	7	APR	1981	1711	83.076782	10.028614	54	3	22	110	36.0	36.0
30	7	APR	1981	1948	83.074783	10.015312	62	4	31	190	30.0	31.0
30	7	APR	1981	2134	83.073776	10.006330	54	4	22	190	37.0	28.0
30	7	APR	1981	2210	83.073776	10.003948	51	3	23	130	40.0	34.0
30	7	APR	1981	2320	83.072906	9.996223	53	3	32	190	25.0	13.0
30	7	APR	1981	2356	83.073120	10.003489	62	4	24	130	26.0	42.0
30	8	APR	1981	106	83.072495	9.994646	58	4	33	190	25.0	20.0
30	8	APR	1981	148	83.073181	9.994556	59	4	27	140	36.0	30.0
30	8	APR	1981	252	83.072998	9.990870	71	4	29	190	34.0	46.0
30	8	APR	1981	626	83.078751	9.977648	71	4	25	190	30.0	49.0
30	8	APR	1981	1150	83.089386	9.922512	53	3	31	190	35.0	20.0
30	8	APR	1981	1250	83.090576	9.910753	53	3	33	110	32.0	23.0
30	8	APR	1981	1338	83.092987	9.908602	60	4	39	190	27.0	25.0
30	8	APR	1981	1436	83.094131	9.895979	49	3	34	110	31.0	17.0
30	8	APR	1981	1525	83.097687	9.902369	75	4	35	190	28.0	56.0
30	8	APR	1981	1622	83.099396	9.874182	51	3	31	110	31.0	21.0
30	8	APR	1981	1808	83.106659	9.838869	60	4	34	110	28.0	30.0
30	8	APR	1981	1859	83.112004	9.823973	68	4	36	190	30.0	38.0
30	8	APR	1981	2231	83.126678	9.767277	53	3	34	190	32.0	15.0
30	8	APR	1981	2329	83.131378	9.754433	63	4	35	110	26.0	29.0
30	9	APR	1981	17	83.133782	9.730267	55	3	37	190	26.0	16.0
30	9	APR	1981	47	83.133782	9.717871	49	3	34	200	40.0	25.0
30	9	APR	1981	117	83.133782	9.716791	52	3	34	110	27.0	18.0
30	9	APR	1981	305	83.149507	9.689205	50	3	33	110	24.0	15.0
30	9	APR	1981	453	83.160200	9.662560	54	3	35	110	27.0	20.0
30	9	APR	1981	641	83.171184	9.634705	66	4	33	110	28.0	36.0
30	9	APR	1981	724	83.173828	9.605965	63	3	26	190	36.0	34.0
30	9	APR	1981	912	83.185211	9.549395	54	3	24	190	37.0	37.0
30	9	APR	1981	1100	83.196198	9.495483	52	3	34	190	30.0	18.0
30	9	APR	1981	1248	83.204024	9.445616	56	3	34	190	23.0	17.0
30	9	APR	1981	1348	83.208542	9.405756	50	3	33	110	34.0	19.0
30	9	APR	1981	1436	83.214706	9.395153	68	4	34	190	28.0	35.0
30	9	APR	1981	1534	83.216141	9.344618	50	3	28	110	33.0	20.0
30	9	APR	1981	1658	83.223053	9.292797	47	4	29	140	35.0	23.0
30	9	APR	1981	1720	83.224518	9.269531	56	3	34	110	30.0	24.0
30	9	APR	1981	1844	83.231491	9.216534	53	4	28	140	33.0	32.0
30	9	APR	1981	1906	83.233276	9.188974	69	4	31	110	32.0	59.0
30	9	APR	1981	1956	83.238937	9.180470	61	4	31	190	39.0	31.0
30	9	APR	1981	2142	83.245956	9.107409	54	4	31	190	35.0	20.0
30	9	APR	1981	2240	83.250732	9.066626	70	4	35	110	25.0	41.0
30	9	APR	1981	2328	83.251770	9.024343	54	3	32	190	32.0	17.0
30	10	APR	1981	28	83.257553	8.980806	56	3	35	110	26.0	21.0
30	10	APR	1981	114	83.257797	8.943022	60	4	38	190	28.0	23.0
30	10	APR	1981	216	83.263138	8.909472	51	3	31	110	27.0	16.0
30	10	APR	1981	301	83.262894	8.862957	73	4	34	190	32.0	16.0
30	10	APR	1981	404	83.267899	8.847319	52	3	33	110	28.0	18.0
30	10	APR	1981	551	83.271988	8.786913	60	3	34	110	23.0	22.0
30	10	APR	1981	634	83.272736	8.745781	70	3	20	190	40.0	56.0
30	10	APR	1981	822	83.275253	8.684332	58	3	33	190	26.0	24.0
30	10	APR	1981	1113	83.273590	8.597107	64	4	32	110	31.0	39.0
30	10	APR	1981	1158	83.274292	8.568226	54	3	20	190	41.0	45.0
30	10	APR	1981	1259	83.269409	8.533678	53	3	26	110	39.0	32.0
30	10	APR	1981	1606	83.259598	8.439436	47	3	29	140	35.0	22.0
30	10	APR	1981	1631	83.258560	8.433559	52	4	33	110	30.0	20.0
30	10	APR	1981	1752	83.254913	8.400177	50	3	32	140	39.0	26.0
30	10	APR	1981	1818	83.253738	8.399448	62	4	34	110	38.0	33.0
30	10	APR	1981	1938	83.249924	8.374990	59	4	33	140	27.0	44.0
30	10	APR	1981	2338	83.238617	8.300961	62	4	34	110	25.0	27.0

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## NAVIGATION - ORIGINAL

SN	UY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	11	APR	1981	126	83.231796	8.278410	52	3	29	110	33.0	24.0
30	11	APR	1981	246	83.226883	8.258526	55	3	24	140	40.0	36.0
30	11	APR	1981	314	83.224243	8.251827	50	3	28	110	37.0	19.0
30	11	APR	1981	502	83.217316	8.225367	55	3	32	110	33.0	25.0
30	11	APR	1981	650	83.209442	8.194944	68	4	30	110	33.0	45.0
30	11	APR	1981	811	83.204742	8.180935	51	4	23	130	41.0	24.0
30	11	APR	1981	1210	83.186569	8.106247	57	4	31	110	34.0	27.0
30	11	APR	1981	1256	83.184525	8.075901	57	4	38	190	33.0	26.0
30	11	APR	1981	1328	83.181061	8.073181	54	3	29	140	39.0	31.0
30	11	APR	1981	1356	83.179459	8.057812	50	3	34	110	31.0	17.0
30	11	APR	1981	1444	83.176819	8.027897	69	4	32	190	26.0	40.0
30	11	APR	1981	1514	83.174194	8.030048	47	4	28	140	30.0	21.0
30	11	APR	1981	1542	83.172821	8.023148	50	4	33	110	29.0	17.0
30	11	APR	1981	1729	83.166977	7.988264	57	4	34	110	27.0	23.0
30	11	APR	1981	1846	83.162781	7.963820	53	4	23	140	41.0	25.0
30	11	APR	1981	1915	83.161835	7.962614	71	4	34	110	29.0	57.0
30	11	APR	1981	2004	83.158417	7.947695	60	4	38	190	34.0	28.0
30	11	APR	1981	2150	83.153748	7.911546	54	4	34	190	30.0	15.0
30	11	APR	1981	2249	83.152374	7.878773	68	4	35	110	24.0	35.0
30	11	APR	1981	2336	83.149307	7.879984	54	4	32	190	26.0	15.0
30	12	APR	1981	37	83.147461	7.848766	55	3	35	110	26.0	20.0
30	12	APR	1981	122	83.144302	7.846161	61	4	32	190	27.0	26.0
30	12	APR	1981	153	83.143875	7.822313	59	4	31	140	32.0	25.0
30	12	APR	1981	225	83.142959	7.814593	50	3	35	110	26.0	15.0
30	12	APR	1981	341	83.138321	7.783350	53	4	33	140	38.0	22.0
30	12	APR	1981	413	83.136414	7.773580	52	4	35	110	26.0	17.0
30	12	APR	1981	528	83.132416	7.745769	55	4	32	140	39.0	22.0
30	12	APR	1981	601	83.130524	7.734039	61	4	34	110	23.0	24.0
30	12	APR	1981	643	83.127716	7.703972	68	4	32	190	25.0	36.0
30	12	APR	1981	716	83.126587	7.707182	65	4	29	140	41.0	42.0
30	12	APR	1981	830	83.122299	7.669685	56	4	33	190	22.0	19.0
30	12	APR	1981	1018	83.116943	7.648179	51	4	31	190	32.0	19.0
30	12	APR	1981	1122	83.111969	7.654932	62	4	34	110	27.0	30.0
30	12	APR	1981	1206	83.110123	7.617749	54	4	34	190	24.0	15.0
30	12	APR	1981	1236	83.107712	7.636422	59	4	34	140	31.0	34.0
30	12	APR	1981	1308	83.104889	7.624470	52	4	33	110	33.0	21.0
30	12	APR	1981	1354	83.102051	7.595797	63	4	37	190	26.0	28.0
30	12	APR	1981	1422	83.100021	7.612416	49	3	33	140	37.0	25.0
30	12	APR	1981	1454	83.097336	7.600283	49	4	32	110	30.0	17.0
30	12	APR	1981	1608	83.092239	7.585188	46	3	31	140	35.0	21.0
30	12	APR	1981	1640	83.090851	7.565505	52	4	33	110	30.0	21.0
30	12	APR	1981	1754	83.086746	7.549869	49	4	31	140	33.0	23.0
30	12	APR	1981	1826	83.085907	7.544062	64	4	32	110	35.0	43.0
30	12	APR	1981	1915	83.083511	7.535773	65	4	28	190	39.0	48.0
30	12	APR	1981	1940	83.082855	7.527302	60	4	33	140	31.0	36.0
30	12	APR	1981	2247	83.077362	7.479521	52	4	33	190	33.0	18.0
30	12	APR	1981	2346	83.077393	7.467341	51	3	31	200	40.0	28.0
30	13	APR	1981	33	83.074600	7.451424	57	4	36	190	28.0	19.0
30	13	APR	1981	100	83.075073	7.432990	64	4	36	140	31.0	30.0
30	13	APR	1981	132	83.074661	7.427108	47	3	32	200	38.0	24.0
30	13	APR	1981	219	83.072891	7.412395	68	4	36	190	36.0	47.0
30	13	APR	1981	248	83.073456	7.397153	54	3	35	140	29.0	18.0
30	13	APR	1981	319	83.072891	7.391358	50	4	26	200	37.0	28.0
30	13	APR	1981	436	83.071594	7.368891	53	4	32	140	32.0	19.0
30	13	APR	1981	505	83.070755	7.363721	60	4	27	200	37.0	52.0
30	13	APR	1981	553	83.070099	7.343371	75	5	31	190	29.0	54.0
30	13	APR	1981	623	83.069351	7.350642	59	4	30	140	29.0	22.0
30	13	APR	1981	740	83.068558	7.328709	60	4	36	190	27.0	25.0
30	13	APR	1981	811	83.067078	7.327328	73	4	30	140	28.0	42.0
30	13	APR	1981	928	83.067261	7.311630	58	3	35	190	30.0	20.0
30	13	APR	1981	1022	83.066177	7.308982	60	4	32	200	34.0	36.0
30	13	APR	1981	1116	83.065735	7.301525	52	4	34	190	41.0	25.0
30	13	APR	1981	1144	83.064667	7.297964	66	4	35	140	27.0	46.0
30	13	APR	1981	1304	83.064056	7.284659	58	4	34	190	28.0	21.0
30	13	APR	1981	1330	83.062943	7.277555	53	4	32	140	31.0	24.0
30	13	APR	1981	1452	83.061310	7.263434	71	4	37	190	33.0	54.0
30	13	APR	1981	1516	83.060593	7.259233	47	3	33	140	29.0	18.0
30	13	APR	1981	1552	83.059845	7.256412	50	4	34	110	30.0	18.0



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## NAVIGATION - ORIGINAL

SN	LY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDY
30	13	APR	1981	1702	83.058090	7.241347	47	4	33	140	28.0	18.0
30	13	APR	1981	1738	83.057602	7.239684	58	4	32	110	27.0	26.0
30	13	APR	1981	1848	83.055725	7.226877	54	4	35	140	36.0	32.0
30	13	APR	1981	2012	83.053131	7.211948	58	4	38	190	37.0	28.0
30	13	APR	1981	2034	83.053528	7.211661	68	4	36	140	27.0	53.0
30	13	APR	1981	2158	83.051437	7.189498	53	4	36	190	33.0	17.0
30	13	APR	1981	2258	83.051056	7.190162	65	4	34	110	25.0	33.0
30	13	APR	1981	2344	83.050430	7.172069	54	4	34	190	28.0	17.0
30	14	APR	1981	8	83.049652	7.179119	70	4	30	140	35.0	54.0
30	14	APR	1981	46	83.049179	7.179132	53	3	33	110	29.0	22.0
30	14	APR	1981	130	83.048370	7.172023	62	4	31	190	27.0	25.0
30	14	APR	1981	155	83.047882	7.169007	58	4	32	140	35.0	28.0
30	14	APR	1981	234	83.046753	7.165504	49	3	35	110	29.0	17.0
30	14	APR	1981	422	83.044144	7.148037	52	4	33	110	26.0	17.0
30	14	APR	1981	531	83.042496	7.141807	55	4	30	140	33.0	23.0
30	14	APR	1981	610	83.041351	7.132714	63	4	36	110	25.0	28.0
30	14	APR	1981	651	83.041580	7.123489	66	4	30	190	29.0	37.0
30	14	APR	1981	838	83.038788	7.117461	55	4	30	190	24.0	19.0
30	14	APR	1981	1026	83.035553	7.113402	51	4	37	190	22.0	13.0
30	14	APR	1981	1131	83.033218	7.097795	60	4	30	110	27.0	29.0
30	14	APR	1981	1214	83.032501	7.093880	54	4	34	190	27.0	18.0
30	14	APR	1981	1238	83.030441	7.091562	58	4	26	140	36.0	44.0
30	14	APR	1981	1317	83.030151	7.084753	50	4	29	110	30.0	16.0
30	14	APR	1981	1402	83.028381	7.078683	64	4	38	190	24.0	27.0
30	14	APR	1981	1424	83.027069	7.071196	49	4	29	140	32.0	24.0
30	14	APR	1981	1503	83.026215	7.067269	49	4	33	110	30.0	16.0
30	14	APR	1981	1610	83.023132	7.050996	46	3	30	140	35.0	21.0
30	14	APR	1981	1649	83.021866	7.051554	53	4	33	110	26.0	19.0
30	14	APR	1981	1756	83.019562	7.031092	50	4	24	140	32.0	18.0
30	14	APR	1981	1836	83.017242	7.038123	66	4	34	110	29.0	40.0
30	14	APR	1981	1923	83.013412	7.029151	63	4	36	190	37.0	36.0
30	14	APR	1981	2109	83.009033	7.007938	54	4	32	190	33.0	19.0
30	14	APR	1981	2129	83.010315	7.008327	66	4	24	200	36.0	59.0
30	14	APR	1981	2209	83.008087	6.996183	73	4	35	110	21.0	42.0
30	14	APR	1981	2255	83.005554	6.989328	52	4	36	190	35.0	18.0
30	14	APR	1981	2357	83.004028	6.989899	57	4	35	110	23.0	20.0
30	15	APR	1981	41	83.002197	6.986046	57	4	34	190	27.0	19.0
30	15	APR	1981	145	83.000305	6.981338	50	4	34	110	28.0	18.0
30	15	APR	1981	248	82.998108	6.973265	48	4	31	200	38.0	28.0
30	15	APR	1981	333	82.996582	6.964976	50	4	33	110	27.0	17.0
30	15	APR	1981	521	82.992401	6.951875	57	4	34	110	21.0	18.0
30	15	APR	1981	708	82.988007	6.937360	72	4	36	110	21.0	40.0
30	15	APR	1981	748	82.987167	6.942571	58	4	24	190	25.0	26.0
30	15	APR	1981	936	82.983261	6.950451	52	4	25	190	36.0	27.0
30	15	APR	1981	1042	82.981232	6.953903	66	4	30	110	33.0	44.0
30	15	APR	1981	1124	82.980377	6.953767	52	4	30	190	36.0	22.0
30	15	APR	1981	1146	82.979401	6.958271	65	4	25	140	34.0	50.0
30	15	APR	1981	1414	82.976410	6.965089	48	4	33	110	30.0	16.0
30	15	APR	1981	1600	82.974121	6.969784	50	4	29	110	31.0	18.0
30	15	APR	1981	1747	82.970886	6.981623	59	4	32	110	31.0	32.0
30	15	APR	1981	2206	82.964600	6.983142	52	4	23	190	41.0	21.0
30	15	APR	1981	2308	82.964035	6.986885	63	4	33	110	27.0	33.0
30	16	APR	1981	56	82.963455	6.985137	52	4	31	110	29.0	22.0
30	16	APR	1981	244	82.962936	6.981121	49	4	35	110	27.0	16.0
30	16	APR	1981	345	82.962850	6.975598	52	4	31	140	33.0	19.0
30	16	APR	1981	432	82.962555	6.966527	53	4	33	110	23.0	17.0
30	16	APR	1981	533	82.962494	6.961326	55	4	27	140	34.0	24.0
30	16	APR	1981	619	82.962158	6.958124	65	4	34	110	27.0	33.0
30	16	APR	1981	720	82.961380	6.952880	66	4	30	140	33.0	37.0
30	16	APR	1981	1140	82.959259	6.936325	57	4	28	110	30.0	31.0
30	16	APR	1981	1213	82.959167	6.928095	48	4	32	200	41.0	25.0
30	16	APR	1981	1240	82.958771	6.928967	57	4	29	140	29.0	30.0
30	16	APR	1981	1326	82.958328	6.927541	50	4	29	110	33.0	21.0
30	16	APR	1981	1426	82.957077	6.918277	48	3	31	140	32.0	22.0
30	16	APR	1981	1512	82.956024	6.918289	49	5	28	110	33.0	21.0
30	16	APR	1981	1612	82.954163	6.912359	46	4	33	140	34.0	20.0
30	16	APR	1981	1658	82.953186	6.909734	55	4	31	110	30.0	24.0
30	16	APR	1981	1727	82.951950	6.906735	66	4	33	200	39.0	57.0

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NAVIGATION - ORIGINAL

SN	DT	MO	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	16	APR	1981	1758	82.950729	0.897955	50	4	34	140	27.0	19.0
30	16	APR	1981	1844	82.949158	0.899846	68	4	34	110	27.0	44.0
30	16	APR	1981	1944	82.946594	0.890656	62	4	33	140	30.0	41.0
30	16	APR	1981	2218	82.941513	0.861917	70	4	30	110	22.0	37.0
30	17	APR	1981	6	82.938873	0.856262	56	4	31	110	28.0	23.0
30	17	APR	1981	30	82.938324	0.854524	47	4	31	200	41.0	27.0
30	17	APR	1981	105	82.937881	0.851805	61	4	35	140	35.0	31.0
30	17	APR	1981	154	82.936905	0.849420	49	4	33	110	30.0	19.0
30	17	APR	1981	217	82.936508	0.848778	47	4	32	200	38.0	25.0
30	17	APR	1981	252	82.936172	0.846304	53	0	28	140	33.0	20.0
30	17	APR	1981	342	82.935028	0.842770	51	4	35	110	26.0	16.0
30	17	APR	1981	404	82.934799	0.841042	54	4	32	200	37.0	32.0
30	17	APR	1981	440	82.934052	0.836753	53	4	31	140	35.0	21.0
30	17	APR	1981	530	82.932892	0.831952	59	4	36	110	27.0	25.0
30	17	APR	1981	609	82.932312	0.822571	70	4	37	190	24.0	39.0
30	17	APR	1981	718	82.929932	0.815968	70	4	36	110	21.0	49.0
30	17	APR	1981	757	82.929489	0.817394	57	4	36	190	20.0	17.0
30	17	APR	1981	944	82.926376	0.813973	51	4	31	190	31.0	19.0
30	17	APR	1981	1051	82.923676	0.820106	63	4	36	110	28.0	34.0
30	17	APR	1981	1132	82.922607	0.811534	52	4	35	190	25.0	15.0
30	17	APR	1981	1238	82.919800	0.816317	52	4	35	110	30.0	20.0
30	17	APR	1981	1320	82.918579	0.810554	60	4	33	190	39.0	33.0
30	17	APR	1981	1424	82.916214	0.814267	48	4	34	110	27.0	14.0
30	17	APR	1981	1610	82.912399	0.807137	51	4	31	110	31.0	19.0
30	17	APR	1981	1756	82.907639	0.802534	61	4	33	110	32.0	34.0
30	17	APR	1981	2026	82.898590	0.792034	55	4	35	190	41.0	27.0
30	17	APR	1981	2102	82.897339	0.784463	48	4	31	130	30.0	19.0
30	17	APR	1981	2127	82.896406	0.783067	78	4	34	110	21.0	59.0
30	17	APR	1981	2317	82.891724	0.763694	60	4	32	110	24.0	23.0
30	18	APR	1981	0	82.890244	0.771877	54	4	38	190	37.0	22.0
30	18	APR	1981	105	82.887604	0.767204	51	4	28	110	32.0	19.0
30	18	APR	1981	146	82.886780	0.775371	65	4	31	190	38.0	42.0
30	18	APR	1981	253	82.884384	0.770932	49	4	29	110	30.0	18.0
30	18	APR	1981	628	82.875961	0.764186	68	4	30	110	27.0	38.0
30	18	APR	1981	707	82.874649	0.763749	61	4	32	190	35.0	33.0
30	18	APR	1981	855	82.867752	0.760289	52	4	34	190	32.0	22.0
30	18	APR	1981	958	82.863358	0.772603	59	4	26	200	41.0	54.0
30	18	APR	1981	1043	82.860550	0.761950	50	4	32	190	28.0	16.0
30	18	APR	1981	1230	82.853592	0.760573	55	4	35	190	26.0	18.0
30	18	APR	1981	1327	82.851044	0.770021	46	4	28	200	35.0	19.0
30	18	APR	1981	1418	82.848633	0.757673	67	4	33	190	32.0	42.0
30	18	APR	1981	1939	82.838516	0.748592	59	4	30	190	37.0	32.0
30	18	APR	1981	2125	82.834717	0.734324	52	4	30	190	32.0	17.0
30	18	APR	1981	2214	82.834000	0.725201	56	4	28	200	34.0	33.0
30	19	APR	1981	0	82.831497	0.727283	47	4	26	200	37.0	27.0
30	19	APR	1981	57	82.830902	0.730558	59	4	32	190	25.0	19.0
30	19	APR	1981	146	82.829666	0.728413	45	4	30	200	37.0	23.0
30	19	APR	1981	333	82.828690	0.728509	51	4	32	200	36.0	28.0
30	19	APR	1981	539	82.826920	0.722714	61	4	35	110	22.0	23.0
30	19	APR	1981	617	82.826797	0.712845	67	4	32	190	25.0	35.0
30	19	APR	1981	805	82.822678	0.715498	55	4	29	190	33.0	29.0
30	19	APR	1981	953	82.817383	0.716331	50	4	35	190	30.0	18.0
30	19	APR	1981	1100	82.813248	0.713744	60	4	33	110	28.0	29.0
30	19	APR	1981	1141	82.812103	0.709223	52	4	35	190	32.0	20.0
30	19	APR	1981	1220	82.810684	0.709867	46	4	27	200	36.0	23.0
30	19	APR	1981	1246	82.809052	0.708971	50	4	34	110	26.0	16.0
30	19	APR	1981	1328	82.807755	0.708117	61	4	36	190	31.0	31.0
30	19	APR	1981	1432	82.806381	0.712405	48	4	33	110	28.0	15.0
30	19	APR	1981	1549	82.804718	0.714420	53	4	30	200	36.0	29.0
30	19	APR	1981	1618	82.804352	0.718926	52	4	34	110	27.0	19.0
30	19	APR	1981	1805	82.802383	0.722289	63	4	35	110	29.0	36.0
30	19	APR	1981	2036	82.798370	0.736781	54	4	30	190	32.0	19.0
30	19	APR	1981	2105	82.797287	0.729531	66	4	28	200	37.0	41.0
30	19	APR	1981	2138	82.796204	0.733672	74	4	34	110	24.0	53.0
30	19	APR	1981	2222	82.795105	0.747068	51	4	32	190	36.0	19.0
30	19	APR	1981	2251	82.794357	0.736169	52	4	30	200	26.0	21.0
30	19	APR	1981	2326	82.793213	0.731266	58	4	33	110	25.0	24.0
30	20	APR	1981	7	82.791611	0.733731	55	4	37	190	33.0	21.0

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## NAVIGATION - ORIGINAL

SN	LY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	UP	SAT	STDY	STDZ
30	20	APR	1981	38	82.791595	6.721865	45	4	32	200	37.0	23.0
30	20	APR	1981	114	82.790848	6.709814	50	4	32	110	25.0	16.0
30	20	APR	1981	154	82.789871	6.708314	66	4	27	190	32.0	38.0
30	20	APR	1981	302	82.789566	6.690169	49	4	35	110	23.0	13.0
30	20	APR	1981	410	82.789108	6.680285	55	4	29	200	37.0	36.0
30	20	APR	1981	450	82.787933	6.679614	55	4	32	110	28.0	20.0
30	20	APR	1981	638	82.783096	6.668194	70	4	36	110	24.0	39.0
30	20	APR	1981	715	82.780426	6.671474	59	4	30	190	36.0	31.0
30	20	APR	1981	903	82.771545	6.663688	51	4	34	190	25.0	16.0
30	20	APR	1981	1012	82.762085	6.686281	67	4	35	110	32.0	48.0
30	20	APR	1981	1051	82.758820	6.657218	50	4	35	190	32.0	19.0
30	20	APR	1981	1112	82.756500	6.668677	50	4	31	200	40.0	28.0
30	20	APR	1981	1156	82.750671	6.668406	53	4	35	110	31.0	22.0
30	20	APR	1981	1239	82.746384	6.645465	56	4	34	190	40.0	30.0
30	20	APR	1981	1344	82.739273	6.653188	48	4	31	110	31.0	16.0
30	20	APR	1981	1426	82.734726	6.623057	70	4	35	190	34.0	55.0
30	20	APR	1981	1530	82.728867	6.631228	49	4	34	110	27.0	15.0
30	20	APR	1981	1716	82.718826	6.615211	57	4	31	110	24.0	23.0
30	20	APR	1981	1902	82.708328	6.612295	73	5	33	110	26.0	58.0
30	20	APR	1981	1946	82.700485	6.580421	57	4	26	190	37.0	33.0
30	20	APR	1981	2237	82.681396	6.517618	64	4	35	110	27.0	32.0
30	20	APR	1981	2318	82.674759	6.527416	52	4	28	190	41.0	22.0
30	21	APR	1981	25	82.666519	6.515688	52	4	32	110	24.0	17.0
30	21	APR	1981	213	82.652023	6.516307	48	4	34	110	25.0	15.0
30	21	APR	1981	401	82.639664	6.508103	51	4	34	110	25.0	16.0
30	21	APR	1981	548	82.629456	6.501043	62	4	36	110	26.0	29.0
30	21	APR	1981	813	82.617844	6.517026	53	4	30	190	29.0	18.0
30	21	APR	1981	1109	82.593353	6.542230	58	4	30	110	30.0	29.0
30	21	APR	1981	1256	82.578369	6.526409	49	4	34	110	26.0	15.0
30	21	APR	1981	1442	82.565323	6.499179	47	4	34	110	26.0	14.0
30	21	APR	1981	1628	82.554291	6.474608	52	4	34	110	27.0	19.0
30	21	APR	1981	1703	82.551361	6.475065	63	4	31	200	38.0	48.0
30	21	APR	1981	1814	82.544937	6.467658	65	4	32	110	32.0	44.0
30	21	APR	1981	2148	82.520889	6.432278	71	4	32	110	23.0	41.0
30	21	APR	1981	2220	82.516266	6.445518	53	4	29	200	41.0	36.0
30	21	APR	1981	2335	82.506424	6.450614	55	4	35	110	24.0	19.0
30	22	APR	1981	123	82.491669	6.465804	48	4	34	110	25.0	15.0
30	22	APR	1981	153	82.487595	6.468034	44	4	30	200	33.0	22.0
30	22	APR	1981	311	82.478348	6.470648	48	4	35	110	25.0	15.0
30	22	APR	1981	340	82.474991	6.469638	50	4	30	200	39.0	31.0
30	22	APR	1981	454	82.465561	6.4652905	56	4	36	110	26.0	21.0
30	22	APR	1981	526	82.462448	6.454028	66	4	28	200	39.0	51.0
30	22	APR	1981	647	82.452728	6.435031	72	5	34	110	24.0	44.0
30	22	APR	1981	857	82.435440	6.458283	65	4	30	200	39.0	55.0
30	22	APR	1981	1021	82.422531	6.446579	63	4	34	110	34.0	41.0
30	22	APR	1981	1207	82.407501	6.414089	51	4	34	110	28.0	19.0
30	22	APR	1981	1226	82.405624	6.407293	44	4	31	200	39.0	22.0
30	22	APR	1981	1353	82.394104	6.389712	46	4	33	110	29.0	16.0
30	22	APR	1981	1539	82.383408	6.363316	48	4	34	110	29.0	17.0
30	22	APR	1981	1618	82.379272	6.352947	44	4	25	140	39.0	22.0
30	22	APR	1981	1725	82.374207	6.335082	58	4	35	110	26.0	24.0
30	22	APR	1981	1804	82.370697	6.322534	51	4	30	140	32.0	24.0
30	22	APR	1981	1950	82.363846	6.296129	65	5	34	140	30.0	46.0
30	22	APR	1981	2246	82.353882	6.251040	60	4	33	110	20.0	21.0
30	23	APR	1981	34	82.347549	6.245974	49	4	32	110	23.0	16.0
30	23	APR	1981	222	82.342850	6.241401	47	4	35	110	26.0	15.0
30	23	APR	1981	410	82.339783	6.236598	51	4	31	110	30.0	23.0
30	23	APR	1981	558	82.336838	6.227823	64	4	36	110	24.0	29.0
30	23	APR	1981	1118	82.321075	6.187943	55	4	24	110	33.0	34.0
30	23	APR	1981	1155	82.318817	6.184965	57	4	25	140	41.0	33.0
30	23	APR	1981	1303	82.315582	6.171906	43	4	17	200	41.0	34.0
30	23	APR	1981	1341	82.312302	6.163010	47	4	33	140	26.0	17.0
30	23	APR	1981	1448	82.309525	6.152094	46	4	21	200	41.0	34.0
30	23	APR	1981	1526	82.309769	6.143106	43	4	31	140	28.0	16.0
30	23	APR	1981	1712	82.301880	6.118924	46	4	33	140	34.0	23.0
30	23	APR	1981	1858	82.297745	6.096262	57	4	29	140	35.0	42.0
30	23	APR	1981	2149	82.290131	6.065089	55	4	23	200	29.0	24.0
30	23	APR	1981	2336	82.283707	6.067330	44	4	28	200	31.0	21.0

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## NAVIGATION - ORIGINAL

SN	DY	MCN	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDX	STDY
30	24	APR	1981	18	82.282288	6.066547	61	4	23	140	41.0	38.0
30	24	APR	1981	122	82.278351	6.068857	42	4	30	200	29.0	19.0
30	24	APR	1981	206	82.276474	6.067207	51	4	33	140	32.0	20.0
30	24	APR	1981	309	82.273270	6.069366	47	4	31	200	26.0	19.0
30	24	APR	1981	354	82.271469	6.073873	49	4	31	140	31.0	18.0
30	24	APR	1981	455	82.268875	6.074206	61	4	29	200	24.0	29.0
30	24	APR	1981	826	82.256500	6.102436	69	5	26	200	29.0	47.0
30	24	APR	1981	1011	82.247894	6.078897	52	4	30	200	32.0	26.0
30	24	APR	1981	1156	82.237289	6.054561	43	4	29	200	31.0	18.0
30	24	APR	1981	1216	82.235046	6.052555	49	4	33	110	31.0	20.0
30	24	APR	1981	1249	82.231628	6.045619	50	4	26	140	33.0	27.0
30	24	APR	1981	1340	82.227249	6.029655	43	4	29	200	40.0	25.0
30	24	APR	1981	1402	82.224564	6.026075	45	4	33	110	31.0	17.0
30	24	APR	1981	1525	82.217087	6.002364	49	4	24	200	38.0	29.0
30	24	APR	1981	1548	82.215057	5.998716	48	4	29	110	34.0	21.0
30	24	APR	1981	1620	82.211990	5.993140	44	4	33	140	33.0	20.0
30	24	APR	1981	1734	82.206223	5.976114	60	4	35	110	28.0	28.0
30	24	APR	1981	1806	82.203552	5.969693	51	4	30	140	33.0	28.0
30	24	APR	1981	1952	82.196037	5.948887	66	5	32	140	32.0	49.0
30	24	APR	1981	2108	82.190765	5.901098	76	5	32	110	21.0	52.0
30	24	APR	1981	2255	82.184753	5.888847	58	4	35	110	22.0	20.0
30	24	APR	1981	2326	82.183197	5.876778	68	5	30	140	32.0	44.0
30	25	APR	1981	14	82.180130	5.881474	42	4	24	200	40.0	29.0
30	25	APR	1981	43	82.178467	5.879122	48	4	35	110	25.0	15.0
30	25	APR	1981	113	82.177017	5.875504	54	4	33	140	34.0	23.0
30	25	APR	1981	200	82.173920	5.875580	42	4	25	200	33.0	20.0
30	25	APR	1981	231	82.172180	5.875902	46	4	34	110	27.0	16.0
30	25	APR	1981	301	82.170792	5.878048	49	4	32	140	39.0	21.0
30	25	APR	1981	419	82.165894	5.877363	52	4	35	110	24.0	17.0
30	25	APR	1981	449	82.164215	5.879303	51	4	31	140	30.0	18.0
30	25	APR	1981	607	82.158890	5.872645	66	5	35	110	23.0	29.0
30	25	APR	1981	941	82.140045	5.867633	68	5	33	110	29.0	43.0
30	25	APR	1981	1048	82.132935	5.829942	47	4	24	200	39.0	30.0
30	25	APR	1981	1128	82.128586	5.824445	52	4	32	110	29.0	22.0
30	25	APR	1981	1157	82.125229	5.816594	55	4	30	140	32.0	32.0
30	25	APR	1981	1233	82.121933	5.795082	42	4	27	200	30.0	17.0
30	25	APR	1981	1314	82.117065	5.792512	46	4	34	110	28.0	15.0
30	25	APR	1981	1343	82.113876	5.784548	45	4	34	140	25.0	15.0
30	25	APR	1981	1418	82.110809	5.774117	44	4	30	200	40.0	24.0
30	25	APR	1981	1459	82.105377	5.764401	46	4	33	110	25.0	14.0
30	25	APR	1981	1528	82.101501	5.757876	43	4	27	140	37.0	20.0
30	25	APR	1981	1646	82.093964	5.743845	53	4	35	110	24.0	18.0
30	25	APR	1981	1714	82.090515	5.737137	46	4	30	140	33.0	23.0
30	25	APR	1981	1832	82.083069	5.730319	69	5	35	110	27.0	47.0
30	25	APR	1981	1900	82.079941	5.715027	58	4	28	140	35.0	36.0
30	25	APR	1981	2118	82.067703	5.655928	57	4	30	200	36.0	38.0
30	25	APR	1981	2206	82.063690	5.640043	64	4	33	110	23.0	29.0
30	25	APR	1981	2305	82.058701	5.630420	45	4	29	200	31.0	20.0
30	25	APR	1981	2354	82.055222	5.617762	51	4	32	110	23.0	18.0
30	26	APR	1981	20	82.053802	5.612318	59	4	34	140	32.0	27.0
30	26	APR	1981	51	82.050644	5.610895	41	4	28	200	27.0	18.0
30	26	APR	1981	142	82.047287	5.604655	45	4	35	110	23.0	13.0
30	26	APR	1981	208	82.045990	5.603571	50	4	30	140	36.0	20.0
30	26	APR	1981	238	82.043503	5.603511	44	4	27	200	27.0	18.0
30	26	APR	1981	330	82.040314	5.604078	48	4	32	110	26.0	16.0
30	26	APR	1981	356	82.039154	5.605404	49	4	29	140	37.0	19.0
30	26	APR	1981	424	82.037155	5.604043	55	4	31	200	22.0	21.0
30	26	APR	1981	518	82.039162	5.607059	58	4	34	110	25.0	23.0
30	26	APR	1981	544	82.032623	5.609619	56	4	31	140	31.0	21.0
30	26	APR	1981	941	82.016922	5.614303	54	4	30	200	29.0	26.0
30	26	APR	1981	1039	82.012024	5.609648	58	4	34	110	30.0	27.0
30	26	APR	1981	1105	82.009933	5.608446	62	5	29	140	29.0	39.0
30	26	APR	1981	1126	82.008224	5.597598	43	4	24	200	31.0	20.0
30	26	APR	1981	1225	82.003128	5.592693	47	4	33	110	25.0	15.0
30	26	APR	1981	1251	82.000488	5.589730	49	4	34	140	26.0	18.0
30	26	APR	1981	1557	81.984909	5.573112	49	4	31	110	28.0	16.0
30	26	APR	1981	1622	81.982422	5.572444	43	4	33	140	25.0	15.0
30	26	APR	1981	1743	81.977020	5.566577	61	5	34	110	26.0	29.0

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## NAVIGATION - ORIGINAL

SN	LY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	OP	SAT	STDY	STDX
30	26	APR	1981	1808	81.975235	5.563040	51	4	32	140	26.0	21.0
30	26	APR	1981	1954	81.969620	5.559623	67	5	29	140	34.0	53.0
30	26	APR	1981	2117	81.966385	5.532256	73	5	35	110	20.0	37.0
30	26	APR	1981	2304	81.963120	5.528978	55	4	33	110	23.0	19.0
30	26	APR	1981	2328	81.962784	5.525462	66	4	34	140	34.0	40.0
30	27	APR	1981	16	81.961670	5.539078	74	6	33	130	21.0	51.0
30	27	APR	1981	52	81.961121	5.525876	46	4	33	110	26.0	16.0
30	27	APR	1981	116	81.960892	5.523317	53	4	30	140	29.0	21.0
30	27	APR	1981	240	81.959457	5.525846	46	4	34	110	28.0	17.0
30	27	APR	1981	1437	81.946671	5.564398	69	2	35	130	25.0	56.0
30	27	APR	1981	1508	81.945892	5.552288	46	3	33	110	24.0	17.0
30	27	APR	1981	1622	81.941391	5.552795	52	2	31	130	27.0	24.0
30	27	APR	1981	1654	81.940384	5.546741	55	2	33	110	28.0	29.0
30	27	APR	1981	1808	81.936127	5.541361	44	2	34	130	30.0	21.0
30	27	APR	1981	1902	81.934647	5.537932	59	3	29	140	40.0	48.0
30	27	APR	1981	1921	81.933762	5.539009	53	3	35	190	40.0	33.0
30	27	APR	1981	1954	81.932663	5.528459	43	3	33	130	23.0	16.0
30	27	APR	1981	2107	81.931274	5.527630	47	3	33	190	35.0	21.0
30	27	APR	1981	2140	81.930557	5.516263	49	3	30	130	24.0	20.0
30	27	APR	1981	2215	81.930618	5.510902	61	3	36	110	22.0	29.0
30	27	APR	1981	2234	81.930344	5.508184	46	2	27	200	37.0	32.0
30	27	APR	1981	2253	81.929886	5.507823	48	2	29	130	38.0	29.0
30	27	APR	1981	2326	81.929810	5.504102	64	3	33	130	26.0	42.0
30	28	APR	1981	3	81.929932	5.503042	49	3	35	110	23.0	18.0
30	28	APR	1981	20	81.929825	5.497730	40	4	28	200	33.0	26.0
30	28	APR	1981	151	81.929688	5.497416	45	3	35	110	26.0	18.0
30	28	APR	1981	207	81.930008	5.497754	42	3	24	200	31.0	24.0
30	28	APR	1981	300	81.929916	5.496232	68	3	32	130	24.0	40.0
30	28	APR	1981	339	81.929718	5.498516	49	3	35	110	27.0	21.0
30	28	APR	1981	354	81.929688	5.500885	51	3	22	200	36.0	28.0
30	28	APR	1981	448	81.930023	5.498706	53	3	23	130	31.0	38.0
30	28	APR	1981	527	81.929886	5.502649	60	3	35	110	26.0	32.0
30	28	APR	1981	546	81.930298	5.505026	56	3	29	140	33.0	26.0
30	28	APR	1981	636	81.929794	5.508385	46	2	28	130	23.0	20.0
30	28	APR	1981	824	81.930649	5.515904	47	3	35	130	26.0	18.0
30	28	APR	1981	1012	81.929840	5.523342	57	3	35	130	22.0	22.0
30	28	APR	1981	1048	81.929626	5.523755	55	3	32	110	34.0	36.0
30	28	APR	1981	1107	81.928940	5.523147	60	3	28	140	30.0	40.0
30	28	APR	1981	1123	81.928848	5.527268	48	2	31	190	31.0	22.0
30	28	APR	1981	1159	81.928192	5.525255	76	3	29	130	24.0	59.0
30	28	APR	1981	1234	81.927185	5.526380	46	2	31	110	32.0	24.0
30	28	APR	1981	1253	81.926346	5.523696	47	2	33	140	29.0	25.0
30	28	APR	1981	1312	81.926102	5.525269	59	3	36	190	38.0	45.0
30	28	APR	1981	1420	81.923996	5.524824	44	4	31	110	32.0	32.0
30	28	APR	1981	1439	81.923096	5.520652	42	3	32	140	30.0	31.0
30	28	APR	1981	1533	81.920013	5.525181	58	3	30	130	24.0	31.0
30	28	APR	1981	1606	81.919785	5.518339	50	3	29	110	35.0	30.0
30	28	APR	1981	1624	81.918701	5.516533	44	3	32	140	30.0	23.0
30	28	APR	1981	1719	81.915070	5.515226	47	3	33	130	31.0	23.0
30	28	APR	1981	1752	81.914627	5.517381	64	4	25	110	38.0	50.0
30	28	APR	1981	1800	81.913727	5.511316	52	3	30	140	33.0	33.0
30	28	APR	1981	1832	81.911789	5.512012	58	3	35	190	39.0	43.0
30	28	APR	1981	1905	81.910995	5.500933	43	3	34	130	26.0	17.0
30	28	APR	1981	2018	81.908310	5.495461	48	2	35	190	39.0	26.0
30	28	APR	1981	2050	81.907440	5.489674	46	3	24	130	32.0	24.0
30	28	APR	1981	2204	81.906464	5.481944	46	3	33	190	40.0	23.0
30	28	APR	1981	2237	81.906021	5.478096	57	3	28	130	28.0	35.0
30	28	APR	1981	2314	81.906204	5.475543	53	3	31	110	30.0	31.0
30	28	APR	1981	2330	81.906326	5.473853	64	3	28	140	29.0	44.0
30	28	APR	1981	2350	81.905563	5.471566	52	3	36	190	33.0	25.0
30	29	APR	1981	102	81.905579	5.467951	46	4	32	110	27.0	20.0
30	29	APR	1981	118	81.905914	5.466640	52	3	27	140	36.0	35.0
30	29	APR	1981	250	81.905212	5.462209	46	3	29	110	29.0	22.0
30	29	APR	1981	356	81.905197	5.460956	58	3	33	130	37.0	41.0
30	29	APR	1981	438	81.904648	5.462481	54	3	31	110	29.0	27.0
30	29	APR	1981	546	81.904175	5.457850	48	3	29	130	26.0	22.0
30	29	APR	1981	626	81.903671	5.457505	72	3	30	110	25.0	50.0
30	29	APR	1981	657	81.903748	5.459277	54	3	29	190	29.0	33.0

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## NAVIGATION - ORIGINAL

SN	DT	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	29	APR	1981	734	81.903503	5.462312	46	3	27	130	31.0	27.0
30	29	APR	1981	845	81.903412	5.463029	46	2	31	190	37.0	31.0
30	29	APR	1981	922	81.903320	5.463549	52	3	32	130	26.0	20.0
30	29	APR	1981	959	81.903229	5.466693	62	3	30	110	28.0	38.0
30	29	APR	1981	1015	81.903137	5.468316	69	3	30	140	25.0	56.0
30	29	APR	1981	1033	81.903000	5.465553	46	3	36	190	37.0	27.0
30	29	APR	1981	1109	81.902695	5.464780	66	3	36	130	22.0	34.0
30	29	APR	1981	1146	81.901794	5.465357	49	3	34	110	29.0	22.0
30	29	APR	1981	1201	81.901718	5.466010	52	3	26	140	30.0	28.0
30	29	APR	1981	1221	81.901764	5.464019	53	3	36	190	41.0	38.0
30	29	APR	1981	1331	81.899734	5.460272	44	3	34	110	31.0	20.0
30	29	APR	1981	1347	81.899124	5.462372	44	3	29	140	25.0	17.0
30	29	APR	1981	1443	81.897263	5.463834	66	3	34	130	22.0	40.0
30	29	APR	1981	1517	81.896149	5.449687	46	3	32	110	27.0	20.0
30	29	APR	1981	1532	81.895203	5.452236	42	3	27	140	29.0	23.0
30	29	APR	1981	1630	81.892441	5.450418	51	3	31	130	28.0	27.0
30	29	APR	1981	1703	81.891846	5.441683	57	3	31	110	28.0	33.0
30	29	APR	1981	1718	81.890350	5.440593	47	3	27	140	29.0	31.0
30	29	APR	1981	1816	81.886642	5.430118	43	3	33	130	31.0	21.0
30	29	APR	1981	2001	81.881744	5.410859	44	3	31	130	30.0	20.0
30	29	APR	1981	2017	81.881561	5.399601	65	3	25	200	27.0	51.0
30	29	APR	1981	2147	81.878876	5.392844	51	3	31	130	22.0	23.0
30	29	APR	1981	2203	81.879028	5.388003	48	3	27	200	28.0	28.0
30	29	APR	1981	2224	81.879074	5.386431	58	3	36	110	25.0	28.0
30	29	APR	1981	2301	81.878220	5.384197	48	3	32	190	38.0	26.0
30	29	APR	1981	2334	81.878113	5.380951	67	3	36	130	23.0	45.0
30	29	APR	1981	2350	81.878540	5.376030	40	3	23	200	33.0	30.0
30	30	APR	1981	12	81.878723	5.378246	47	3	35	110	29.0	22.0
30	30	APR	1981	136	81.878647	5.371160	40	3	25	200	35.0	25.0
30	30	APR	1981	200	81.878647	5.369203	45	3	33	110	28.0	20.0
30	30	APR	1981	308	81.878220	5.363851	65	3	35	130	25.0	37.0
30	30	APR	1981	322	81.878540	5.365690	48	3	21	200	34.0	22.0
30	30	APR	1981	348	81.878098	5.364811	50	3	35	110	30.0	24.0
30	30	APR	1981	456	81.877151	5.356991	51	3	29	130	24.0	24.0
30	30	APR	1981	536	81.876709	5.358921	63	3	36	110	26.0	35.0
30	30	APR	1981	607	81.876144	5.354655	59	3	33	190	33.0	41.0
30	30	APR	1981	644	81.875687	5.354806	46	3	28	130	30.0	22.0
30	30	APR	1981	755	81.874161	5.354758	48	3	29	190	39.0	33.0
30	30	APR	1981	832	81.873795	5.355940	48	3	27	130	34.0	23.0
30	30	APR	1981	943	81.872360	5.354051	45	3	34	190	36.0	24.0
30	30	APR	1981	1020	81.872147	5.358996	59	3	26	130	25.0	24.0
30	30	APR	1981	1057	81.871475	5.361222	53	3	33	110	32.0	31.0
30	30	APR	1981	1132	81.870529	5.356536	49	3	31	190	39.0	27.0
30	30	APR	1981	1319	81.866623	5.350068	61	3	37	190	30.0	40.0
30	30	APR	1981	1429	81.863739	5.353052	44	3	34	110	27.0	18.0
30	30	APR	1981	1615	81.857574	5.341365	51	3	34	110	27.0	23.0
30	30	APR	1981	1801	81.849899	5.327344	66	3	35	110	27.0	47.0
30	30	APR	1981	1840	81.845657	5.313888	56	3	36	190	40.0	38.0
30	30	APR	1981	2054	81.837662	5.266606	57	3	22	200	31.0	40.0
30	30	APR	1981	2241	81.834244	5.249351	44	3	21	200	36.0	31.0
30	30	APR	1981	2358	81.832947	5.247973	53	3	36	190	37.0	29.0
30	1	MAY	1981	27	81.832932	5.240100	39	3	26	200	31.0	26.0
30	1	MAY	1981	214	81.832123	5.233509	42	3	21	200	34.0	23.0
30	1	MAY	1981	400	81.830750	5.221939	53	3	20	200	38.0	32.0
30	1	MAY	1981	518	81.829056	5.204182	67	3	36	190	26.0	44.0
30	1	MAY	1981	553	81.827621	5.205804	47	3	34	130	25.0	18.0
30	1	MAY	1981	1042	81.820541	5.186067	46	3	33	190	35.0	27.0
30	1	MAY	1981	1117	81.820251	5.192247	69	2	34	130	25.0	42.0
30	1	MAY	1981	1230	81.819214	5.189510	54	2	33	190	31.0	29.0
30	1	MAY	1981	2009	81.800537	5.120290	44	3	34	130	27.0	19.0
30	1	MAY	1981	2155	81.796692	5.101638	52	2	30	130	31.0	30.0
30	1	MAY	1981	2240	81.796173	5.090762	71	2	29	140	31.0	56.0
30	2	MAY	1981	27	81.796188	5.089718	55	3	34	140	26.0	24.0
30	2	MAY	1981	54	81.796143	5.090150	60	2	34	190	38.0	45.0
30	2	MAY	1981	215	81.797470	5.085167	48	3	32	140	27.0	18.0
30	2	MAY	1981	316	81.797943	5.078365	62	2	33	130	39.0	38.0
30	2	MAY	1981	403	81.797974	5.076745	49	2	34	140	29.0	20.0
30	2	MAY	1981	503	81.797607	5.067409	50	2	33	130	24.0	19.0

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## NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	2	MAY	1981	550	81.796585	5.063046	58	3	32	140	30.0	28.0
30	2	MAY	1981	615	81.796310	5.052945	57	3	34	190	29.0	33.0
30	2	MAY	1981	651	81.796143	5.054681	46	2	27	130	28.0	20.0
30	2	MAY	1981	839	81.794174	5.037021	49	3	34	130	25.0	19.0
30	2	MAY	1981	1027	81.793610	5.026562	61	2	28	130	30.0	29.0
30	2	MAY	1981	1111	81.793579	5.021244	57	3	31	140	35.0	47.0
30	2	MAY	1981	1257	81.794998	5.024744	45	3	29	140	30.0	21.0
30	2	MAY	1981	1323	81.794891	5.023831	40	3	21	200	26.0	16.0
30	2	MAY	1981	1443	81.795792	5.024103	41	3	33	140	29.0	20.0
30	2	MAY	1981	1508	81.795853	5.021265	48	3	30	200	28.0	25.0
30	2	MAY	1981	1548	81.795547	5.020611	54	3	31	130	27.0	29.0
30	2	MAY	1981	1628	81.795013	5.013490	44	2	32	140	23.0	19.0
30	2	MAY	1981	1734	81.793625	5.005386	44	2	30	130	31.0	20.0
30	2	MAY	1981	1814	81.793091	4.995279	54	3	33	140	24.0	28.0
30	2	MAY	1981	1920	81.790985	4.982589	43	3	32	130	28.0	19.0
30	2	MAY	1981	2024	81.790253	4.957284	61	3	27	200	25.0	38.0
30	2	MAY	1981	2106	81.788971	4.949987	48	3	34	130	29.0	23.0
30	2	MAY	1981	2210	81.789307	4.934621	45	3	27	200	28.0	24.0
30	2	MAY	1981	2252	81.789291	4.927876	61	3	35	130	26.0	38.0
30	2	MAY	1981	2334	81.790421	4.924173	61	3	27	140	34.0	42.0
30	2	MAY	1981	2356	81.791260	4.919075	39	3	24	200	33.0	29.0
30	3	MAY	1981	122	81.793732	4.912242	50	3	36	140	30.0	22.0
30	3	MAY	1981	143	81.794647	4.909526	40	3	28	200	33.0	26.0
30	3	MAY	1981	310	81.797638	4.902387	47	3	34	140	27.0	18.0
30	3	MAY	1981	330	81.798233	4.900835	49	3	27	200	27.0	24.0
30	3	MAY	1981	413	81.799301	4.889800	54	3	30	130	34.0	32.0
30	3	MAY	1981	458	81.800873	4.884453	53	2	32	140	33.0	25.0
30	3	MAY	1981	516	81.800842	4.881817	69	3	29	200	19.0	42.0
30	3	MAY	1981	601	81.802094	4.860894	46	3	30	130	32.0	26.0
30	3	MAY	1981	645	81.802414	4.854644	67	3	32	140	33.0	47.0
30	3	MAY	1981	749	81.803589	4.829256	46	3	31	130	33.0	25.0
30	3	MAY	1981	846	81.802933	4.805411	57	3	21	200	36.0	37.0
30	3	MAY	1981	937	81.803940	4.792871	54	3	35	130	25.0	23.0
30	3	MAY	1981	1019	81.803375	4.775734	65	3	29	140	29.0	51.0
30	3	MAY	1981	1050	81.804962	4.770284	46	3	34	190	34.0	26.0
30	3	MAY	1981	1125	81.804810	4.767481	72	3	33	130	28.0	56.0
30	3	MAY	1981	1205	81.804855	4.750974	50	3	29	140	27.0	27.0
30	3	MAY	1981	1238	81.805954	4.750112	56	3	35	190	41.0	44.0
30	3	MAY	1981	1351	81.806534	4.726233	42	3	30	140	30.0	23.0
30	3	MAY	1981	1458	81.807465	4.714521	61	3	35	130	25.0	35.0
30	3	MAY	1981	1536	81.807098	4.705864	42	3	32	140	36.0	25.0
30	3	MAY	1981	1645	81.806107	4.683696	48	3	32	130	22.0	19.0
30	3	MAY	1981	1722	81.805817	4.668413	49	3	30	140	35.0	31.0
30	3	MAY	1981	1830	81.803406	4.644390	43	3	33	130	25.0	17.0
30	3	MAY	1981	2016	81.799820	4.600216	45	3	32	130	26.0	18.0
30	3	MAY	1981	2202	81.797379	4.565223	54	3	32	130	27.0	29.0
30	3	MAY	1981	2242	81.797241	4.550556	64	3	26	140	28.0	49.0
30	4	MAY	1981	29	81.796494	4.539116	54	3	30	140	36.0	31.0
30	4	MAY	1981	102	81.796143	4.535335	61	3	36	190	41.0	51.0
30	4	MAY	1981	217	81.797119	4.527412	47	3	31	140	32.0	23.0
30	4	MAY	1981	323	81.797089	4.517994	60	3	30	130	25.0	28.0
30	4	MAY	1981	405	81.796722	4.511988	49	3	23	140	37.0	34.0
30	4	MAY	1981	511	81.795898	4.492970	48	3	34	130	27.0	21.0
30	4	MAY	1981	553	81.793945	4.482326	59	3	29	140	36.0	32.0
30	4	MAY	1981	624	81.793411	4.463276	55	3	34	190	37.0	39.0
30	4	MAY	1981	659	81.792358	4.454940	45	3	32	130	25.0	18.0
30	4	MAY	1981	811	81.789246	4.421621	46	3	30	190	39.0	33.0
30	4	MAY	1981	847	81.787170	4.411366	50	3	28	130	31.0	24.0
30	4	MAY	1981	924	81.784744	4.399477	51	3	26	200	31.0	32.0
30	4	MAY	1981	1035	81.783539	4.368952	63	3	27	130	31.0	35.0
30	4	MAY	1981	1148	81.783157	4.346027	50	3	36	190	37.0	33.0
30	4	MAY	1981	1259	81.782379	4.326084	45	3	29	140	30.0	24.0
30	4	MAY	1981	1409	81.783417	4.309828	70	3	35	130	22.0	46.0
30	4	MAY	1981	1445	81.783234	4.303906	41	3	32	140	29.0	20.0
30	4	MAY	1981	1556	81.783722	4.290027	52	3	31	130	29.0	26.0
30	4	MAY	1981	1630	81.783081	4.276069	45	3	34	140	26.0	20.0
30	4	MAY	1981	1742	81.781723	4.254685	44	3	32	130	27.0	19.0
30	4	MAY	1981	1816	81.781433	4.237889	55	3	35	140	26.0	31.0

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## NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDZ
30	4	MAY	1981	1927	81.778412	4.208710	43	3	34	130	30.0	21.0
30	4	MAY	1981	2113	81.775009	4.168804	49	3	30	130	35.0	33.0
30	4	MAY	1981	2259	81.772232	4.142773	63	3	35	130	25.0	40.0
30	4	MAY	1981	2336	81.771759	4.134178	60	3	29	140	31.0	37.0
30	5	MAY	1981	124	81.771088	4.130021	49	3	33	140	25.0	19.0
30	5	MAY	1981	233	81.771484	4.130679	69	3	35	130	25.0	45.0
30	5	MAY	1981	312	81.771683	4.128799	47	3	31	140	34.0	22.0
30	5	MAY	1981	421	81.771667	4.122545	52	3	35	130	27.0	24.0
30	5	MAY	1981	500	81.770920	4.119843	53	3	28	140	31.0	23.0
30	5	MAY	1981	609	81.770523	4.100883	46	3	34	130	27.0	20.0
30	5	MAY	1981	648	81.768692	4.088385	69	3	32	140	27.0	37.0
30	5	MAY	1981	721	81.768555	4.071386	48	3	36	190	36.0	29.0
30	5	MAY	1981	757	81.766983	4.062239	47	3	32	130	28.0	20.0
30	5	MAY	1981	945	81.763046	4.014955	56	3	33	130	24.0	23.0
30	5	MAY	1981	1000	81.761627	4.011064	46	3	25	200	27.0	21.0
30	5	MAY	1981	1021	81.761078	4.003447	64	3	30	140	41.0	59.0
30	5	MAY	1981	1207	81.759354	3.970596	49	3	32	140	34.0	31.0
30	5	MAY	1981	1353	81.759033	3.956538	42	3	32	140	27.0	19.0
30	5	MAY	1981	1506	81.759048	3.955503	59	3	30	130	28.0	34.0
30	5	MAY	1981	1538	81.759033	3.956455	42	3	34	140	30.0	21.0
30	5	MAY	1981	1652	81.757874	3.949130	46	3	28	130	28.0	25.0
30	5	MAY	1981	1838	81.754730	3.924336	42	3	30	130	30.0	23.0
30	5	MAY	1981	1910	81.754211	3.916450	64	3	34	140	25.0	47.0
30	5	MAY	1981	2024	81.750839	3.888688	45	3	30	130	27.0	22.0
30	5	MAY	1981	2210	81.747742	3.854540	56	3	31	130	27.0	31.0
30	5	MAY	1981	2244	81.747528	3.842791	68	3	35	140	28.0	44.0
30	6	MAY	1981	31	81.746384	3.835954	53	3	31	140	30.0	28.0
30	6	MAY	1981	110	81.746292	3.835352	63	3	36	190	39.0	53.0
30	6	MAY	1981	219	81.747131	3.835893	47	3	35	140	28.0	18.0
30	6	MAY	1981	331	81.747818	3.836209	58	3	30	130	28.0	29.0
30	6	MAY	1981	407	81.748596	3.838235	49	3	31	140	32.0	22.0
30	6	MAY	1981	519	81.748795	3.831651	48	4	31	130	29.0	21.0
30	6	MAY	1981	555	81.747925	3.828981	60	3	32	140	30.0	30.0
30	6	MAY	1981	820	81.744781	3.785604	45	3	35	190	41.0	30.0
30	6	MAY	1981	1008	81.739960	3.755479	44	3	35	190	39.0	29.0
30	6	MAY	1981	1038	81.738113	3.749725	42	3	23	200	32.0	21.0
30	6	MAY	1981	1115	81.736450	3.740226	55	3	31	140	28.0	31.0
30	6	MAY	1981	1155	81.736206	3.724695	51	3	35	190	40.0	37.0
30	6	MAY	1981	1301	81.734467	3.713652	44	3	34	140	31.0	24.0
30	6	MAY	1981	1343	81.734039	3.704571	67	3	35	190	31.0	56.0
30	6	MAY	1981	1818	81.730865	3.664366	56	3	35	140	30.0	37.0
30	6	MAY	1981	1903	81.729401	3.655396	50	3	35	190	41.0	33.0
30	6	MAY	1981	1935	81.728806	3.641763	43	3	26	130	28.0	24.0
30	6	MAY	1981	2307	81.725067	3.582983	66	3	23	130	27.0	56.0
30	6	MAY	1981	2339	81.725082	3.573434	58	3	28	140	34.0	43.0
30	7	MAY	1981	126	81.724197	3.562243	49	3	34	140	35.0	26.0
30	7	MAY	1981	241	81.724594	3.566778	66	3	33	130	17.0	27.0
30	7	MAY	1981	314	81.724915	3.565661	47	3	35	140	31.0	21.0
30	7	MAY	1981	429	81.725266	3.564684	51	3	32	130	27.0	23.0
30	7	MAY	1981	502	81.725266	3.566319	54	3	32	140	32.0	26.0
30	7	MAY	1981	617	81.724762	3.560739	45	3	30	130	24.0	18.0
30	7	MAY	1981	650	81.723328	3.553854	70	3	29	140	31.0	52.0
30	7	MAY	1981	729	81.723206	3.549309	47	3	30	190	40.0	36.0
30	7	MAY	1981	805	81.722183	3.543763	47	3	33	130	25.0	19.0
30	7	MAY	1981	918	81.719391	3.527256	43	3	33	190	40.0	29.0
30	7	MAY	1981	953	81.717728	3.515991	58	3	35	130	24.0	25.0
30	7	MAY	1981	1023	81.715454	3.513807	62	3	35	140	24.0	39.0
30	7	MAY	1981	1209	81.711472	3.483712	48	3	29	140	30.0	23.0
30	7	MAY	1981	1254	81.710648	3.473852	59	3	35	190	37.0	45.0
30	7	MAY	1981	1355	81.708664	3.465136	42	3	33	140	26.0	19.0
30	7	MAY	1981	1514	81.707703	3.460649	56	3	32	130	29.0	31.0
30	7	MAY	1981	1540	81.707199	3.455381	42	3	28	140	32.0	23.0
30	7	MAY	1981	1700	81.706696	3.452408	45	3	31	130	34.0	24.0
30	7	MAY	1981	1726	81.706177	3.443918	50	3	35	140	27.0	26.0
30	7	MAY	1981	1846	81.704773	3.431002	42	3	34	130	24.0	16.0
30	7	MAY	1981	1912	81.704651	3.426663	66	3	34	140	25.0	51.0
30	7	MAY	1981	2000	81.704330	3.409070	63	3	25	200	32.0	35.0
30	7	MAY	1981	2032	81.702744	3.404607	46	3	32	130	25.0	20.0



## FRAM 3

## NAVIGATION - ORIGINAL

SN	DT	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDY
30	7	MAY	1981	2218	81.700470	3.376822	58	3	35	130	26.0	31.0
30	7	MAY	1981	2246	81.700729	3.363779	66	3	31	140	26.0	37.0
30	8	MAY	1981	34	81.698746	3.352254	52	3	36	140	25.0	20.0
30	8	MAY	1981	222	81.697861	3.353508	47	3	35	140	22.0	21.0
30	8	MAY	1981	339	81.698013	3.352917	56	3	30	130	26.0	29.0
30	8	MAY	1981	409	81.698120	3.356419	50	3	32	140	36.0	27.0
30	8	MAY	1981	526	81.698349	3.357022	47	3	32	130	29.0	23.0
30	8	MAY	1981	557	81.697876	3.357965	61	3	31	140	34.0	36.0
30	8	MAY	1981	715	81.697678	3.359216	45	3	24	130	27.0	29.0
30	8	MAY	1981	822	81.695786	3.358413	58	3	20	200	38.0	38.0
30	8	MAY	1981	903	81.695099	3.350785	52	3	27	130	24.0	23.0
30	8	MAY	1981	1007	81.692856	3.348096	44	3	19	200	26.0	25.0
30	8	MAY	1981	1050	81.691422	3.335473	68	4	26	130	33.0	54.0
30	8	MAY	1981	1117	81.689804	3.338331	53	3	34	140	31.0	34.0
30	8	MAY	1981	1152	81.689011	3.331311	39	3	26	200	25.0	18.0
30	8	MAY	1981	1303	81.686661	3.320108	43	3	31	140	26.0	21.0
30	8	MAY	1981	1336	81.686050	3.317647	41	3	24	200	29.0	25.0
30	8	MAY	1981	1424	81.685043	3.316635	64	3	35	130	29.0	47.0
30	8	MAY	1981	1634	81.683273	3.313265	45	3	34	140	27.0	22.0
30	8	MAY	1981	1725	81.682983	3.309654	62	3	34	190	40.0	53.0
30	8	MAY	1981	1756	81.683319	3.308833	43	3	31	130	29.0	20.0
30	8	MAY	1981	1820	81.683273	3.306676	58	3	33	140	28.0	35.0
30	8	MAY	1981	1942	81.683151	3.299350	43	3	32	130	27.0	21.0
30	8	MAY	1981	2037	81.683594	3.293590	55	3	28	200	22.0	28.0
30	8	MAY	1981	2128	81.683548	3.285711	51	3	35	130	30.0	28.0
30	8	MAY	1981	2224	81.684509	3.274298	42	3	28	200	30.0	26.0
30	8	MAY	1981	2243	81.683273	3.278446	47	3	31	190	40.0	27.0
30	8	MAY	1981	2314	81.683380	3.273970	69	3	34	130	22.0	48.0
30	8	MAY	1981	2341	81.683731	3.274837	57	3	33	140	35.0	32.0
30	9	MAY	1981	10	81.683609	3.274081	38	3	24	200	34.0	29.0
30	9	MAY	1981	128	81.684250	3.278697	48	3	34	140	25.0	18.0
30	9	MAY	1981	156	81.684570	3.282374	41	3	27	200	32.0	24.0
30	9	MAY	1981	249	81.685394	3.296461	63	3	35	130	24.0	34.0
30	9	MAY	1981	316	81.685745	3.297208	47	3	32	140	32.0	22.0
30	9	MAY	1981	343	81.686920	3.303490	53	3	27	200	24.0	26.0
30	9	MAY	1981	436	81.687576	3.318984	50	3	35	130	29.0	23.0
30	9	MAY	1981	504	81.688812	3.323123	53	3	34	140	34.0	28.0
30	9	MAY	1981	624	81.690887	3.338476	45	3	35	130	29.0	20.0
30	9	MAY	1981	652	81.692078	3.345118	72	4	30	140	34.0	57.0
30	9	MAY	1981	813	81.696091	3.345447	48	3	32	130	29.0	22.0
30	9	MAY	1981	900	81.698914	3.346591	51	3	27	200	24.0	24.0
30	9	MAY	1981	926	81.699326	3.352887	43	3	34	190	34.0	25.0
30	9	MAY	1981	1000	81.701279	3.360645	60	3	32	130	33.0	40.0
30	9	MAY	1981	1025	81.702606	3.355530	61	3	32	140	27.0	42.0
30	9	MAY	1981	1044	81.703094	3.366370	41	3	28	200	22.0	17.0
30	9	MAY	1981	1114	81.703506	3.371557	47	3	35	190	39.0	32.0
30	9	MAY	1981	1211	81.705978	3.378558	47	3	32	140	33.0	28.0
30	9	MAY	1981	1228	81.706100	3.390566	39	3	27	200	25.0	18.0
30	9	MAY	1981	1302	81.707001	3.393071	61	3	35	190	33.0	46.0
30	9	MAY	1981	1357	81.708527	3.402478	41	3	34	140	32.0	22.0
30	9	MAY	1981	1413	81.708344	3.406564	43	3	26	200	30.0	26.0
30	9	MAY	1981	1542	81.711960	3.424475	43	3	32	140	34.0	24.0
30	9	MAY	1981	1558	81.712326	3.424726	57	3	28	200	19.0	24.0
30	9	MAY	1981	1707	81.718048	3.444129	44	3	29	130	38.0	26.0
30	9	MAY	1981	1728	81.718124	3.449889	51	3	34	140	30.0	29.0
30	9	MAY	1981	1853	81.725479	3.477196	42	3	31	130	34.0	23.0
30	9	MAY	1981	1929	81.726822	3.484611	68	3	22	200	14.0	51.0
30	9	MAY	1981	2008	81.731567	3.492795	45	3	32	190	36.0	24.0
30	9	MAY	1981	2039	81.732964	3.496644	47	3	34	130	32.0	25.0
30	9	MAY	1981	2115	81.734955	3.501176	49	3	22	200	33.0	46.0
30	9	MAY	1981	2225	81.740295	3.513642	60	3	35	130	28.0	39.0
30	9	MAY	1981	2248	81.741272	3.529299	64	3	31	140	35.0	46.0
30	10	MAY	1981	36	81.749390	3.548434	51	3	34	140	33.0	26.0
30	10	MAY	1981	159	81.754211	3.585794	72	3	34	130	25.0	51.0
30	10	MAY	1981	224	81.756027	3.585924	47	3	32	140	32.0	22.0
30	10	MAY	1981	346	81.760300	3.619813	54	3	30	130	27.0	25.0
30	10	MAY	1981	412	81.762573	3.625111	51	3	28	140	36.0	30.0
30	10	MAY	1981	500	81.764450	3.652575	64	3	36	190	34.0	52.0

## FRAM 3

## NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STOY	STDX
30	10	MAY	1981	534	81.766953	3.653876	46	3	30	130	30.0	21.0
30	10	MAY	1981	559	81.769745	3.667154	63	3	29	140	33.0	46.0
30	10	MAY	1981	648	81.771317	3.679187	49	3	31	190	38.0	37.0
30	10	MAY	1981	722	81.774490	3.692429	46	3	25	130	33.0	26.0
30	10	MAY	1981	836	81.779053	3.708907	43	3	30	190	34.0	27.0
30	10	MAY	1981	910	81.781601	3.723670	54	3	34	130	31.0	29.0
30	10	MAY	1981	1024	81.785461	3.741220	45	3	32	190	35.0	26.0
30	10	MAY	1981	1058	81.787735	3.754788	71	3	31	130	30.0	59.0
30	10	MAY	1981	1119	81.789291	3.747328	52	3	28	140	32.0	40.0
30	10	MAY	1981	1212	81.790802	3.764987	54	3	32	190	34.0	34.0
30	10	MAY	1981	1432	81.794861	3.781561	61	3	31	130	34.0	44.0
30	10	MAY	1981	1618	81.795868	3.800536	48	3	32	130	32.0	28.0
30	10	MAY	1981	1804	81.796463	3.796262	43	3	30	130	32.0	21.0
30	10	MAY	1981	1950	81.797714	3.776237	45	3	29	130	33.0	23.0
30	10	MAY	1981	2339	81.804611	3.717829	39	3	26	200	27.0	23.0
30	11	MAY	1981	126	81.807419	3.702071	40	3	22	200	29.0	22.0
30	11	MAY	1981	256	81.809525	3.704170	61	3	34	130	25.0	31.0
30	11	MAY	1981	319	81.809937	3.703830	48	3	30	140	34.0	23.0
30	11	MAY	1981	444	81.810974	3.719144	49	3	34	130	29.0	22.0
30	11	MAY	1981	506	81.811310	3.721481	57	3	31	140	35.0	31.0
30	11	MAY	1981	558	81.812286	3.736619	54	3	35	190	35.0	36.0
30	11	MAY	1981	632	81.812576	3.741007	45	3	30	130	30.0	20.0
30	11	MAY	1981	746	81.814133	3.760525	45	3	34	190	36.0	27.0
30	11	MAY	1981	820	81.814484	3.759996	50	3	28	130	26.0	24.0
30	11	MAY	1981	934	81.814484	3.774165	43	3	32	190	36.0	28.0
30	11	MAY	1981	1008	81.814545	3.779245	63	3	24	130	29.0	49.0
30	11	MAY	1981	1027	81.814575	3.781286	59	3	31	140	30.0	36.0
30	11	MAY	1981	1122	81.813339	3.790131	49	3	30	190	40.0	33.0
30	11	MAY	1981	1213	81.811509	3.796751	46	3	33	140	34.0	27.0
30	11	MAY	1981	1309	81.808563	3.789937	64	3	27	190	38.0	55.0
30	11	MAY	1981	1359	81.805115	3.798061	42	3	27	140	34.0	26.0
30	11	MAY	1981	1527	81.798279	3.792352	54	3	21	200	32.0	28.0
30	11	MAY	1981	1544	81.796860	3.786786	44	3	28	140	31.0	28.0
30	11	MAY	1981	1730	81.788010	3.748185	53	3	28	140	26.0	33.0
30	11	MAY	1981	2044	81.781036	3.604098	52	3	24	200	20.0	26.0
30	11	MAY	1981	2230	81.782257	3.521312	41	3	29	200	23.0	19.0
30	11	MAY	1981	2250	81.782501	3.506414	63	3	32	140	34.0	44.0
30	12	MAY	1981	17	81.782318	3.464615	38	3	26	200	27.0	23.0
30	12	MAY	1981	38	81.782547	3.454291	51	3	35	140	29.0	21.0
30	12	MAY	1981	204	81.781555	3.424544	43	3	26	200	28.0	25.0
30	12	MAY	1981	226	81.781921	3.415732	47	3	33	140	28.0	19.0
30	12	MAY	1981	354	81.780289	3.385717	53	3	30	130	23.0	24.0
30	12	MAY	1981	414	81.779938	3.387023	52	3	34	140	34.0	28.0
30	12	MAY	1981	542	81.778336	3.361663	46	3	31	130	27.0	24.0
30	12	MAY	1981	601	81.777359	3.362299	65	3	34	140	36.0	49.0
30	12	MAY	1981	656	81.776718	3.349148	48	3	30	190	41.0	38.0
30	12	MAY	1981	730	81.775513	3.345116	47	3	30	130	25.0	19.0
30	12	MAY	1981	918	81.771378	3.326410	56	3	34	130	28.0	27.0
30	12	MAY	1981	1032	81.768280	3.320863	45	3	28	190	39.0	32.0
30	12	MAY	1981	1106	81.766144	3.310952	74	3	31	130	24.0	51.0
30	12	MAY	1981	1220	81.761688	3.309568	56	3	32	190	30.0	33.0
30	12	MAY	1981	1440	81.750778	3.311467	59	3	31	130	27.0	33.0
30	12	MAY	1981	1626	81.741364	3.301872	47	3	33	130	29.0	23.0
30	12	MAY	1981	1638	81.741959	3.304951	47	3	21	140	26.0	32.0
30	12	MAY	1981	1740	81.732559	3.304743	57	3	32	190	41.0	44.0
30	12	MAY	1981	1812	81.730164	3.291184	42	3	32	130	32.0	23.0
30	12	MAY	1981	1926	81.720367	3.276501	46	3	30	190	39.0	28.0
30	12	MAY	1981	1957	81.718582	3.265747	45	3	34	130	25.0	18.0
30	12	MAY	1981	2143	81.708862	3.235946	56	3	34	130	26.0	30.0
30	12	MAY	1981	2258	81.702362	3.211731	48	3	32	190	39.0	31.0
30	12	MAY	1981	2345	81.700195	3.201590	55	3	25	140	36.0	42.0
30	13	MAY	1981	133	81.691254	3.196723	47	3	30	140	29.0	22.0
30	13	MAY	1981	304	81.684830	3.188722	58	3	34	130	26.0	27.0
30	13	MAY	1981	321	81.682053	3.190466	48	3	29	140	37.0	25.0
30	13	MAY	1981	452	81.675186	3.204540	47	3	33	130	25.0	19.0
30	13	MAY	1981	508	81.672897	3.202155	57	3	29	140	35.0	29.0
30	13	MAY	1981	640	81.665573	3.226556	45	3	32	130	29.0	19.0
30	13	MAY	1981	828	81.657349	3.251088	50	3	35	130	31.0	25.0

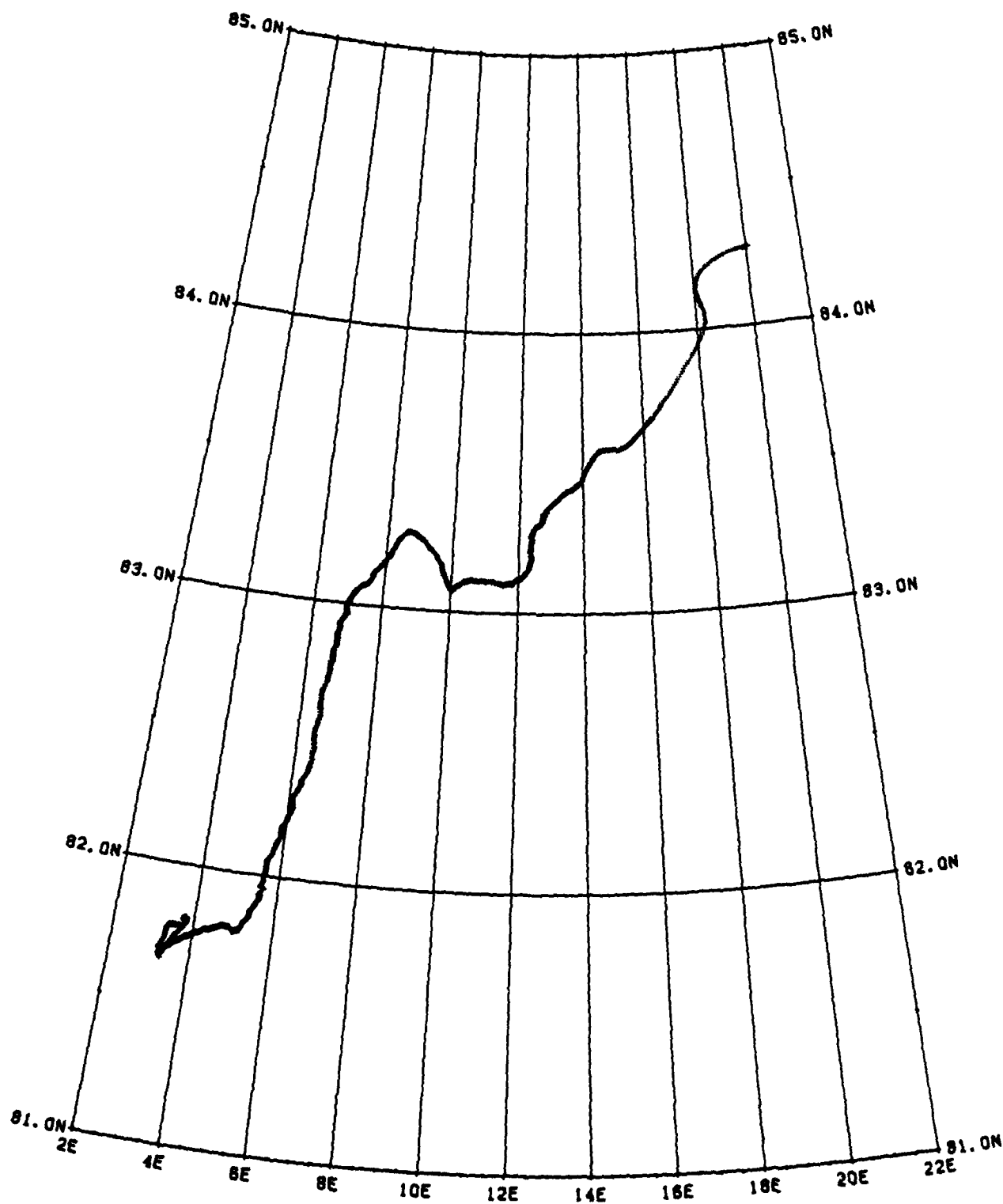


Figure 3 - Drift track of Fram III based on smoothed fixes and hourly interpolations.

SMOOTHED HOURLY POSITIONS AND ICE VELOCITIES  
OF THE FRAM III DRIFTING STATION

Key to Column Headings

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
JULDAY	Relative Julian Day, Day 1 = Jan 01, 1981
LATITUDE	North Latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
N-VEL	North-South component of ice velocity (cm/sec) positive values indicate north velocity negative values indicate south velocity
E-VEL	East-West component of ice velocity (cm/sec) positive values indicate east velocity negative values indicate west velocity

Note that along with the evenly spaced data is the  
filtered original data with associated ice velocity.

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
14	MAR	1981	0	73.000000	84.283333	20.066664	0.0	0.0
14	MAR	1981	100	73.041664	84.283325	20.066311	0.0	-0.3
14	MAR	1981	200	73.083336	84.283295	20.063923	-0.2	-1.2
14	MAR	1981	300	73.125000	84.283195	20.057764	-0.4	-2.6
14	MAR	1981	400	73.166664	84.283012	20.046427	-0.7	-4.4
14	MAR	1981	500	73.208336	84.282715	20.028812	-1.1	-6.5
14	MAR	1981	600	73.250000	84.282272	20.004114	-1.6	-8.7
14	MAR	1981	700	73.291664	84.281677	19.971792	-2.1	-11.1
14	MAR	1981	800	73.333336	84.280891	19.931561	-2.7	-13.6
14	MAR	1981	900	73.375000	84.279915	19.883358	-3.4	-16.0
14	MAR	1981	1000	73.416664	84.278709	19.827335	-4.1	-18.4
14	MAR	1981	1100	73.458336	84.277267	19.763824	-4.8	-20.7
14	MAR	1981	1200	73.500000	84.275581	19.693321	-5.6	-22.7
14	MAR	1981	1300	73.541664	84.273621	19.616472	-6.4	-24.6
14	MAR	1981	1400	73.583336	84.271393	19.534046	-7.3	-26.2
14	MAR	1981	1500	73.625000	84.268883	19.446909	-8.2	-27.5
14	MAR	1981	1600	73.666664	84.266063	19.356009	-9.1	-28.5
14	MAR	1981	1700	73.708336	84.262985	19.262358	-10.0	-29.2
14	MAR	1981	1800	73.750000	84.259598	19.166996	-10.9	-29.6
14	MAR	1981	1900	73.791664	84.255913	19.070986	-11.8	-29.7
14	MAR	1981	2000	73.833336	84.251945	18.975380	-12.7	-29.4
14	MAR	1981	2100	73.875000	84.247668	18.881205	-13.5	-28.8
14	MAR	1981	2200	73.916664	84.243164	18.789436	-14.4	-27.9
14	MAR	1981	2300	73.958336	84.238373	18.700987	-15.2	-26.8
15	MAR	1981	0	74.000000	84.233330	18.616667	-15.9	-25.4
15	MAR	1981	0	74.000000	84.233330	18.616667	-15.9	-25.4
15	MAR	1981	100	74.041664	84.228050	18.537189	-16.6	-23.9
15	MAR	1981	200	74.083336	84.222557	18.463133	-17.3	-22.1
15	MAR	1981	300	74.125000	84.216850	18.394951	-17.9	-20.3
15	MAR	1981	400	74.166664	84.210968	18.332991	-18.4	-18.3
15	MAR	1981	500	74.208336	84.204926	18.277477	-18.9	-16.3
15	MAR	1981	600	74.250000	84.198730	18.228542	-19.3	-14.2
15	MAR	1981	700	74.291664	84.192421	18.186218	-19.6	-12.2
15	MAR	1981	800	74.333336	84.186005	18.150448	-19.9	-10.2
15	MAR	1981	900	74.375000	84.179504	18.121099	-20.1	-8.2
15	MAR	1981	1000	74.416664	84.172935	18.097961	-20.3	-6.3
15	MAR	1981	1100	74.458336	84.166328	18.080763	-20.4	-4.5
15	MAR	1981	1200	74.500000	84.159698	18.069174	-20.5	-2.8
15	MAR	1981	1300	74.541664	84.153061	18.062817	-20.5	-1.2
15	MAR	1981	1400	74.583336	84.146431	18.061268	-20.4	0.2
15	MAR	1981	1500	74.625000	84.139824	18.064060	-20.3	1.5
15	MAR	1981	1600	74.666664	84.133263	18.070711	-20.2	2.7
15	MAR	1981	1700	74.708336	84.126747	18.080708	-20.0	3.6
15	MAR	1981	1800	74.750000	84.120293	18.093525	-19.8	4.4
15	MAR	1981	1900	74.791664	84.113922	18.108629	-19.5	5.1
15	MAR	1981	2000	74.833336	84.107628	18.125483	-19.3	5.6
15	MAR	1981	2100	74.875000	84.101418	18.143555	-19.0	5.9
15	MAR	1981	2200	74.916664	84.095299	18.162327	-18.7	6.0
15	MAR	1981	2300	74.958336	84.089272	18.181299	-18.4	6.0
16	MAR	1981	0	75.000000	84.083336	18.200001	-18.2	5.9
16	MAR	1981	0	75.000000	84.083336	18.200001	-18.2	5.9
16	MAR	1981	100	75.041664	84.077484	18.217976	-17.9	5.6
16	MAR	1981	200	75.083336	84.071716	18.234816	-17.7	5.1
16	MAR	1981	300	75.125000	84.066017	18.250156	-17.5	4.6
16	MAR	1981	400	75.166664	84.060379	18.263649	-17.3	4.0
16	MAR	1981	500	75.208336	84.054779	18.274996	-17.2	3.3
16	MAR	1981	600	75.250000	84.049217	18.283926	-17.1	2.4
16	MAR	1981	700	75.291664	84.043663	18.290197	-17.1	1.6
16	MAR	1981	800	75.333336	84.038101	18.293608	-17.2	0.6
16	MAR	1981	900	75.375000	84.032516	18.293982	-17.3	-0.4
16	MAR	1981	1000	75.416664	84.026886	18.291168	-17.4	-1.4
16	MAR	1981	1100	75.458336	84.021187	18.285059	-17.7	-2.5
16	MAR	1981	1200	75.500000	84.015404	18.275580	-18.0	-3.6
16	MAR	1981	1300	75.541664	84.009521	18.262609	-18.3	-4.7
16	MAR	1981	1400	75.583336	84.003510	18.246180	-18.7	-5.9
16	MAR	1981	1500	75.625000	83.997360	18.226255	-19.2	-7.0
16	MAR	1981	1600	75.666664	83.9911051	18.202854	-19.7	-8.1
16	MAR	1981	1700	75.708336	83.984558	18.176018	-20.3	-9.2

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
16	MAK	1981	1800	75.750000	83.977882	18.145607	-20.9	-10.3
16	MAK	1981	1900	75.791664	83.971001	18.112312	-21.5	-11.4
16	MAK	1981	2000	75.833336	83.963905	18.075640	-22.2	-12.4
16	MAK	1981	2100	75.875000	83.956596	18.045913	-22.9	-13.4
16	MAK	1981	2200	75.916664	83.949066	17.993268	-23.6	-14.3
16	MAK	1981	2300	75.958336	83.941307	17.947922	-24.2	-15.2
17	MAK	1981	0	76.000000	83.933334	17.900000	-24.9	-16.0
17	MAK	1981	0	76.000000	83.933334	17.900000	-24.9	-16.0
17	MAK	1981	100	76.041664	83.925148	17.849722	-25.6	-16.8
17	MAK	1981	200	76.083336	83.916756	17.797300	-26.2	-17.5
17	MAK	1981	300	76.125000	83.908180	17.742962	-26.7	-18.1
17	MAK	1981	400	76.166664	83.899437	17.686945	-27.2	-18.6
17	MAK	1981	500	76.208336	83.890541	17.629492	-27.6	-19.1
17	MAK	1981	600	76.250000	83.881531	17.570850	-27.9	-19.5
17	MAK	1981	700	76.291664	83.872421	17.511262	-28.2	-19.9
17	MAK	1981	800	76.333336	83.863243	17.451042	-28.4	-20.0
17	MAK	1981	900	76.375000	83.854027	17.390383	-28.4	-20.1
17	MAK	1981	1000	76.416664	83.844818	17.329561	-28.4	-20.1
17	MAK	1981	1100	76.458336	83.835632	17.268626	-28.2	-20.1
17	MAK	1981	1200	76.500000	83.826506	17.208424	-28.0	-20.0
17	MAK	1981	1300	76.541664	83.817482	17.148592	-27.6	-19.8
17	MAK	1981	1400	76.583336	83.808586	17.089554	-27.2	-19.5
17	MAK	1981	1500	76.625000	83.799858	17.031534	-26.6	-19.2
17	MAK	1981	1600	76.666664	83.791321	16.974728	-26.0	-18.7
17	MAK	1981	1700	76.708336	83.783012	16.919334	-25.2	-18.3
17	MAK	1981	1800	76.750000	83.774963	16.865522	-24.4	-17.7
17	MAK	1981	1900	76.791664	83.767189	16.813450	-23.5	-17.2
17	MAK	1981	2000	76.833336	83.759727	16.763252	-22.5	-16.5
17	MAK	1981	2100	76.875000	83.752594	16.715059	-21.5	-15.8
17	MAK	1981	2200	76.916664	83.745811	16.668961	-20.4	-15.1
17	MAK	1981	2300	76.958336	83.739380	16.625034	-19.2	-14.4
18	MAK	1981	0	77.000000	83.733330	16.583334	-18.1	-13.7
18	MAK	1981	0	77.000000	83.733330	16.583334	-18.1	-13.7
18	MAK	1981	100	77.041664	83.727654	16.543884	-16.9	-12.9
18	MAK	1981	200	77.083336	83.722359	16.506685	-15.7	-12.2
18	MAK	1981	300	77.125000	83.717445	16.471710	-14.6	-11.4
18	MAK	1981	400	77.166664	83.712898	16.438921	-13.5	-10.7
18	MAK	1981	500	77.208336	83.708702	16.408241	-12.4	-10.0
18	MAK	1981	600	77.250000	83.704857	16.379591	-11.3	-9.4
18	MAK	1981	700	77.291664	83.701340	16.352861	-10.4	-8.7
18	MAK	1981	800	77.333336	83.698128	16.327944	-9.5	-8.2
18	MAK	1981	900	77.375000	83.695190	16.304699	-8.6	-7.6
18	MAK	1981	1000	77.416664	83.692520	16.282990	-7.9	-7.1
18	MAK	1981	1100	77.458336	83.690079	16.262667	-7.2	-6.7
18	MAK	1981	1200	77.500000	83.687843	16.243567	-6.6	-6.3
18	MAK	1981	1300	77.541664	83.685783	16.225534	-6.1	-6.0
18	MAK	1981	1400	77.583336	83.683868	16.208393	-5.7	-5.7
18	MAK	1981	1500	77.625000	83.682076	16.191977	-5.4	-5.5
18	MAK	1981	1600	77.666664	83.680359	16.176113	-5.2	-5.3
18	MAK	1981	1700	77.708336	83.678711	16.160635	-5.0	-5.2
18	MAK	1981	1800	77.750000	83.677094	16.145374	-5.0	-5.2
18	MAK	1981	1900	77.791664	83.675476	16.130175	-5.0	-5.2
18	MAK	1981	2000	77.833336	83.673843	16.114880	-5.1	-5.2
18	MAK	1981	2100	77.875000	83.672157	16.099340	-5.3	-5.3
18	MAK	1981	2200	77.916664	83.670418	16.083427	-5.5	-5.5
18	MAK	1981	2300	77.958336	83.668587	16.067017	-5.8	-5.7
19	MAK	1981	0	78.000000	83.666664	16.049999	-6.1	-5.9
19	MAK	1981	0	78.000000	83.666664	16.049999	-6.1	-5.9
19	MAK	1981	100	78.041664	83.664627	16.032284	-6.4	-6.2
19	MAK	1981	200	78.083336	83.662476	16.013792	-6.8	-6.4
19	MAK	1981	300	78.125000	83.660202	15.994470	-7.2	-6.7
19	MAK	1981	400	78.166664	83.657806	15.974273	-7.6	-7.0
19	MAK	1981	500	78.208336	83.655289	15.953173	-8.0	-7.4
19	MAK	1981	600	78.250000	83.652649	15.931156	-8.3	-7.7
19	MAK	1981	700	78.291664	83.649902	15.908218	-8.6	-8.0
19	MAK	1981	800	78.333336	83.647049	15.884369	-8.9	-8.3
19	MAK	1981	900	78.375000	83.644112	15.859637	-9.2	-8.6
19	MAK	1981	1000	78.416664	83.641090	15.834043	-9.4	-8.9

# FRAM 3 NAVIGATION - KALMAN

UY	MUN	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
19	MAH	1981	1100	78.458333	63.638016	15.807627	-9.8	-9.2
19	MAH	1981	1200	78.500000	63.634688	15.780436	-9.7	-9.4
19	MAH	1981	1300	78.541664	63.631729	15.752533	-9.8	-9.7
19	MAH	1981	1400	78.583336	63.628555	15.723960	-9.8	-9.9
19	MAH	1981	1500	78.625000	63.625389	15.694787	-9.7	-10.1
19	MAH	1981	1600	78.666664	63.622246	15.665086	-9.6	-10.3
19	MAH	1981	1700	78.708336	63.619141	15.634917	-9.5	-10.4
19	MAH	1981	1800	78.750000	63.616096	15.604354	-9.3	-10.6
19	MAH	1981	1900	78.791664	63.613136	15.573471	-9.0	-10.7
19	MAH	1981	2000	78.833336	63.610260	15.542337	-8.7	-10.7
19	MAH	1981	2100	78.875000	63.607498	15.511025	-8.3	-10.8
19	MAH	1981	2200	78.916664	63.604858	15.479598	-7.9	-10.8
19	MAH	1981	2300	78.958336	63.602356	15.448125	-7.5	-10.8
20	MAH	1981	0	79.000000	63.599998	15.416667	-7.0	-10.8
20	MAH	1981	0	79.000000	63.599998	15.416667	-7.0	-10.8
20	MAH	1981	100	79.041664	63.597801	15.385277	-6.5	-10.8
20	MAH	1981	200	79.083336	63.595764	15.354013	-6.0	-10.7
20	MAH	1981	300	79.125000	63.593903	15.322919	-5.5	-10.7
20	MAH	1981	400	79.166664	63.592209	15.292036	-5.0	-10.6
20	MAH	1981	500	79.208336	63.590691	15.261399	-4.4	-10.5
20	MAH	1981	600	79.250000	63.589340	15.231043	-3.9	-10.4
20	MAH	1981	700	79.291664	63.588158	15.200995	-3.4	-10.3
20	MAH	1981	800	79.333336	63.587143	15.171280	-2.9	-10.2
20	MAH	1981	900	79.375000	63.586288	15.141919	-2.4	-10.1
20	MAH	1981	1000	79.416664	63.585579	15.112926	-2.0	-9.9
20	MAH	1981	1100	79.458336	63.585014	15.084318	-1.5	-9.8
20	MAH	1981	1200	79.500000	63.584587	15.056107	-1.1	-9.7
20	MAH	1981	1300	79.541664	63.584274	15.028294	-0.8	-9.5
20	MAH	1981	1400	79.583336	63.584076	15.000888	-0.5	-9.4
20	MAH	1981	1500	79.625000	63.583969	14.973887	-0.2	-9.2
20	MAH	1981	1600	79.666664	63.583954	14.947296	0.0	-9.1
20	MAH	1981	1700	79.708336	63.584000	14.921109	0.2	-9.0
20	MAH	1981	1800	79.750000	63.584099	14.895326	0.4	-8.8
20	MAH	1981	1900	79.791664	63.584236	14.869934	0.5	-8.7
20	MAH	1981	2000	79.833336	63.584396	14.844931	0.5	-8.6
20	MAH	1981	2100	79.875000	63.584564	14.820304	0.5	-8.4
20	MAH	1981	2200	79.916664	63.584717	14.796041	0.4	-8.3
20	MAH	1981	2300	79.958336	63.584846	14.772136	0.3	-8.2
21	MAH	1981	0	80.000000	63.584938	14.748569	0.2	-8.1
21	MAH	1981	100	80.041664	63.584961	14.725334	0.0	-8.0
21	MAH	1981	200	80.083336	63.584915	14.702408	-0.3	-7.9
21	MAH	1981	300	80.125000	63.584778	14.679780	-0.6	-7.8
21	MAH	1981	400	80.166664	63.584534	14.657436	-0.9	-7.7
21	MAH	1981	500	80.208336	63.584175	14.635360	-1.3	-7.6
21	MAH	1981	600	80.250000	63.583679	14.613534	-1.7	-7.5
21	MAH	1981	700	80.291664	63.583038	14.591944	-2.2	-7.4
21	MAH	1981	800	80.333336	63.582237	14.570576	-2.7	-7.3
21	MAH	1981	900	80.375000	63.581268	14.549410	-3.3	-7.3
21	MAH	1981	1000	80.416664	63.580116	14.528440	-3.8	-7.2
21	MAH	1981	1100	80.458336	63.578781	14.507644	-4.4	-7.2
21	MAH	1981	1200	80.500000	63.577255	14.487013	-5.0	-7.1
21	MAH	1981	1300	80.541664	63.575523	14.466537	-5.6	-7.1
21	MAH	1981	1400	80.583336	63.573593	14.446201	-6.3	-7.0
21	MAH	1981	1500	80.625000	63.571449	14.425999	-6.9	-7.0
21	MAH	1981	1600	80.666664	63.569099	14.405920	-7.6	-6.9
21	MAH	1981	1700	80.708336	63.566544	14.385962	-8.2	-6.9
21	MAH	1981	1800	80.750000	63.563782	14.366117	-8.8	-6.9
21	MAH	1981	1900	80.791664	63.560822	14.346381	-9.4	-6.8
21	MAH	1981	2000	80.833336	63.557678	14.326756	-10.0	-6.7
21	MAH	1981	2100	80.875000	63.554344	14.307242	-10.5	-6.7
21	MAH	1981	2200	80.916664	63.550842	14.287841	-11.0	-6.7
21	MAH	1981	2214	80.926384	63.550003	14.283334	-11.1	-6.7
21	MAH	1981	2300	80.958336	63.547188	14.268559	-11.5	-6.7
22	MAH	1981	0	81.000000	63.543388	14.249404	-11.9	-6.6
22	MAH	1981	100	81.041664	63.539467	14.230383	-12.3	-6.6
22	MAH	1981	200	81.083336	63.535439	14.211507	-12.5	-6.5
22	MAH	1981	300	81.125000	63.531334	14.192787	-12.7	-6.5
22	MAH	1981	400	81.166664	63.527176	14.174242	-12.9	-6.4

# FRAM 3 NAVIGATION - KALMAN

LY	MUN	YEAR	GHT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
22	MAH	1981	500	81.208336	83.522980	14.155877	-12.9	-6.4
22	MAH	1981	600	81.250000	83.518784	14.137706	-12.9	-6.3
22	MAH	1981	700	81.291664	83.514610	14.119736	-12.8	-6.2
22	MAH	1981	800	81.333336	83.510483	14.101980	-12.6	-6.2
22	MAH	1981	900	81.375000	83.506424	14.084437	-12.4	-6.1
22	MAH	1981	1000	81.416664	83.502457	14.067113	-12.1	-6.0
22	MAH	1981	1100	81.458336	83.498604	14.050003	-11.7	-5.9
22	MAH	1981	1200	81.500000	83.494881	14.033104	-11.2	-5.9
22	MAH	1981	1300	81.541664	83.491318	14.016405	-10.7	-5.8
22	MAH	1981	1400	81.583336	83.487915	13.999892	-10.2	-5.8
22	MAH	1981	1500	81.525000	83.484688	13.983542	-9.7	-5.7
22	MAH	1981	1600	81.666664	83.481644	13.967327	-9.1	-5.7
22	MAH	1981	1700	81.708336	83.478783	13.951216	-8.5	-5.6
22	MAH	1981	1800	81.750000	83.476120	13.935169	-7.9	-5.6
22	MAH	1981	1900	81.791664	83.473633	13.919135	-7.4	-5.6
22	MAH	1981	2000	81.833336	83.471313	13.903059	-6.9	-5.7
22	MAH	1981	2100	81.875000	83.469154	13.886879	-6.4	-5.7
22	MAH	1981	2200	81.916664	83.467125	13.870517	-6.1	-5.8
22	MAH	1981	2214	81.926384	83.466667	13.866666	-6.0	-5.8
22	MAH	1981	2300	81.958336	83.465202	13.853902	-5.8	-5.9
23	MAH	1981	0	82.000000	83.463364	13.836961	-5.6	-6.0
23	MAH	1981	100	82.041664	83.461571	13.819600	-5.5	-6.2
23	MAH	1981	200	82.083336	83.459778	13.801720	-5.5	-6.4
23	MAH	1981	300	82.125000	83.457970	13.783224	-5.7	-6.6
23	MAH	1981	400	82.166664	83.456100	13.764021	-5.9	-6.9
23	MAH	1981	500	82.208336	83.454170	13.744036	-6.1	-7.2
23	MAH	1981	600	82.250000	83.452171	13.723201	-6.2	-7.5
23	MAH	1981	700	82.291664	83.450134	13.701479	-6.3	-7.8
23	MAH	1981	704	82.294441	83.449997	13.700000	-6.3	-7.8
23	MAH	1981	800	82.333336	83.448097	13.678851	-6.2	-8.1
23	MAH	1981	900	82.375000	83.446114	13.655330	-5.9	-8.4
23	MAH	1981	1000	82.416664	83.444283	13.630968	-5.4	-8.7
23	MAH	1981	1100	82.458336	83.442665	13.605869	-4.6	-9.0
23	MAH	1981	1200	82.500000	83.441330	13.580265	-3.6	-9.1
23	MAH	1981	1300	82.541664	83.440308	13.554216	-2.7	-9.2
23	MAH	1981	1400	82.583336	83.439560	13.528241	-1.9	-9.1
23	MAH	1981	1500	82.625000	83.439018	13.502723	-1.5	-8.9
23	MAH	1981	1600	82.666664	83.438507	13.478215	-1.8	-8.4
23	MAH	1981	1700	82.708336	83.437759	13.455413	-3.0	-7.7
23	MAH	1981	1733	82.731255	83.437134	13.443880	-4.1	-7.1
23	MAH	1981	1800	82.750000	83.436455	13.435073	-5.2	-6.7
23	MAH	1981	1817	82.761803	83.435951	13.429839	-5.9	-6.4
23	MAH	1981	1842	82.779167	83.435081	13.422602	-6.9	-5.9
23	MAH	1981	1900	82.791664	83.434387	13.417722	-7.5	-5.6
23	MAH	1981	1919	82.804863	83.433594	13.412806	-8.0	-5.4
23	MAH	1981	1941	82.820137	83.432617	13.407190	-8.3	-5.5
23	MAH	1981	2000	82.833336	83.431755	13.402119	-8.4	-5.9
23	MAH	1981	2100	82.875000	83.429131	13.382182	-7.5	-8.6
23	MAH	1981	2200	82.916664	83.426964	13.352924	-6.1	-11.7
23	MAH	1981	2300	82.958336	83.425041	13.318509	-6.1	-12.1
24	MAH	1981	0	83.000000	83.422874	13.287162	-7.4	-9.8
24	MAH	1981	3	83.002083	83.422752	13.285784	-7.5	-9.7
24	MAH	1981	100	83.041664	83.420258	13.263074	-8.4	-7.6
24	MAH	1981	120	83.055557	83.419342	13.256127	-8.4	-7.2
24	MAH	1981	151	83.077080	83.417953	13.245784	-8.1	-7.0
24	MAH	1981	200	83.083336	83.417564	13.242789	-7.9	-7.1
24	MAH	1981	300	83.125000	83.415146	13.221952	-7.0	-7.8
24	MAH	1981	339	83.152084	83.413712	13.206998	-6.7	-6.3
24	MAH	1981	400	83.166664	83.412949	13.198749	-6.7	-6.3
24	MAH	1981	414	83.176384	83.412437	13.193289	-6.8	-6.2
24	MAH	1981	500	83.208336	83.410698	13.175733	-7.2	-8.0
24	MAH	1981	527	83.227081	83.409630	13.165520	-7.5	-8.1
24	MAH	1981	600	83.250000	83.408264	13.152759	-7.8	-8.4
24	MAH	1981	700	83.291664	83.405640	13.128490	-8.3	-8.7
24	MAH	1981	714	83.301384	83.405014	13.122749	-8.4	-8.7
24	MAH	1981	800	83.333336	83.402901	13.103980	-8.5	-8.6
24	MAH	1981	900	83.375000	83.400139	13.080263	-8.4	-8.2
24	MAH	1981	1000	83.416664	83.397514	13.057586	-7.7	-7.9



# FRAM 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
24	MAR	1981	1100	83.458336	83.395142	13.035576	-6.9	-7.7
24	MAR	1981	1200	83.500000	83.393051	13.014045	-6.1	-7.5
24	MAR	1981	1235	83.524307	83.391922	13.001935	-5.9	-7.2
24	MAR	1981	1300	83.541664	83.391136	12.993649	-5.8	-6.9
24	MAR	1981	1310	83.548607	83.390823	12.990446	-5.8	-6.8
24	MAR	1981	1330	83.562500	83.390190	12.984269	-5.8	-6.4
24	MAR	1981	1400	83.583336	83.389236	12.975716	-6.0	-5.7
24	MAR	1981	1456	83.622223	83.387459	12.962301	-5.5	-4.5
24	MAR	1981	1500	83.625000	83.387337	12.961457	-5.5	-4.5
24	MAR	1981	1518	83.637505	83.386826	12.957823	-5.1	-4.1
24	MAR	1981	1600	83.666664	83.385750	12.950174	-4.3	-3.7
24	MAR	1981	1608	83.672218	83.385567	12.948780	-4.2	-3.7
24	MAR	1981	1642	83.695831	83.384850	12.942790	-3.6	-3.9
24	MAR	1981	1700	83.708336	83.384514	12.939409	-3.2	-4.1
24	MAR	1981	1754	83.745834	83.383675	12.928255	-2.7	-4.6
24	MAR	1981	1800	83.750000	83.383583	12.926970	-2.6	-4.6
24	MAR	1981	1827	83.768745	83.383209	12.921245	-2.5	-4.4
24	MAR	1981	1900	83.791664	83.382767	12.914872	-2.4	-3.7
24	MAR	1981	1940	83.819443	83.382225	12.909059	-2.7	-2.4
24	MAR	1981	2000	83.833336	83.381912	12.907074	-3.1	-1.8
24	MAR	1981	2013	83.842361	83.381683	12.906080	-3.3	-1.5
24	MAR	1981	2100	83.875000	83.380722	12.902790	-4.2	-2.1
24	MAR	1981	2200	83.916664	83.379272	12.889931	-4.5	-7.8
24	MAR	1981	2300	83.958336	83.377884	12.860660	-4.1	-11.3
24	MAR	1981	2314	83.968056	83.377571	12.853589	-4.0	-10.9
25	MAR	1981	0	84.000000	83.376534	12.836442	-4.6	-3.2
25	MAR	1981	11	84.007637	83.376251	12.835635	-4.8	-0.0
25	MAR	1981	100	84.041664	83.374893	12.846577	-5.1	7.1
25	MAR	1981	102	84.043053	83.374840	12.847236	-5.0	7.0
25	MAR	1981	134	84.065277	83.374023	12.856840	-4.3	5.3
25	MAR	1981	200	84.083336	83.373482	12.861587	-3.4	2.5
25	MAR	1981	250	84.118057	83.372772	12.862247	-2.0	-1.2
25	MAR	1981	300	84.125000	83.372673	12.861609	-1.8	-1.5
25	MAR	1981	321	84.139580	83.372498	12.859865	-1.4	-1.9
25	MAR	1981	400	84.166664	83.372253	12.856091	-0.9	-2.1
25	MAR	1981	437	84.192360	83.372101	12.852611	-0.7	-1.9
25	MAR	1981	500	84.208336	83.372025	12.850534	-0.6	-1.9
25	MAR	1981	508	84.213890	83.372002	12.849817	-0.5	-1.9
25	MAR	1981	600	84.250000	83.371819	12.844989	-0.9	-2.1
25	MAR	1981	625	84.267357	83.371674	12.842352	-1.3	-2.4
25	MAR	1981	700	84.291664	83.371376	12.838185	-1.9	-2.7
25	MAR	1981	800	84.333336	83.370613	12.830181	-2.8	-2.9
25	MAR	1981	844	84.363884	83.369896	12.824584	-3.2	-2.5
25	MAR	1981	900	84.375000	83.369614	12.822775	-3.3	-2.3
25	MAR	1981	1000	84.416664	83.368500	12.817595	-3.5	-1.3
25	MAR	1981	1100	84.458336	83.367401	12.815746	-3.2	0.0
25	MAR	1981	1200	84.500000	83.366432	12.817536	-2.8	1.2
25	MAR	1981	1300	84.541664	83.365631	12.822442	-2.2	2.2
25	MAR	1981	1400	84.583336	83.365028	12.829335	-1.6	2.6
25	MAR	1981	1500	84.625000	83.364616	12.836695	-1.0	2.5
25	MAR	1981	1600	84.666664	83.364357	12.842834	-0.6	1.8
25	MAR	1981	1700	84.708336	83.364197	12.846132	-0.4	0.5
25	MAR	1981	1800	84.750000	83.364090	12.845227	-0.4	-1.2
25	MAR	1981	1900	84.791664	83.363945	12.839264	-0.5	-3.1
25	MAR	1981	2000	84.833336	83.363724	12.828111	-0.9	-4.8
25	MAR	1981	2100	84.875000	83.363342	12.812568	-1.4	-6.1
25	MAR	1981	2200	84.916664	83.362778	12.794600	-2.1	-6.5
25	MAR	1981	2300	84.958336	83.362000	12.777565	-2.7	-5.4
25	MAR	1981	2322	84.973610	83.361656	12.772434	-3.0	-4.6
26	MAR	1981	0	85.000000	83.361015	12.765663	-3.3	-3.0
26	MAR	1981	12	85.008331	83.360794	12.764143	-3.4	-2.4
26	MAR	1981	41	85.028473	83.360268	12.761509	-3.3	-1.5
26	MAR	1981	100	85.041664	83.359940	12.760395	-3.1	-1.2
26	MAR	1981	108	85.047218	83.359802	12.759960	-3.0	-1.1
26	MAR	1981	200	85.083336	83.359062	12.757437	-2.2	-1.0
26	MAR	1981	200	85.083336	83.359062	12.757437	-2.2	-1.0
26	MAR	1981	228	85.102776	83.358757	12.756070	-1.8	-1.0
26	MAR	1981	300	85.125000	83.358490	12.754660	-1.3	-0.8

# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
26	MAK	1981	348	85.158333	83.358261	12.753190	-0.5	-0.5
26	MAK	1981	400	85.188884	83.358238	12.752983	-0.3	-0.4
26	MAK	1981	416	85.177780	83.358223	12.752754	0.0	-0.2
26	MAK	1981	500	85.208336	83.358276	12.752649	0.5	0.0
26	MAK	1981	538	85.233330	83.358391	12.752625	0.6	-0.1
26	MAK	1981	600	85.250000	83.358467	12.752314	0.6	-0.4
26	MAK	1981	604	85.252777	83.358482	12.752226	0.6	-0.5
26	MAK	1981	700	85.291664	83.358559	12.749577	-0.3	-1.6
26	MAK	1981	724	85.308334	83.358490	12.747480	-0.9	-2.1
26	MAK	1981	800	85.333336	83.358253	12.743675	-1.4	-2.2
26	MAK	1981	815	85.343750	83.358139	12.742163	-1.4	-2.1
26	MAK	1981	900	85.375000	83.357819	12.738551	-1.2	-1.4
26	MAK	1981	1000	85.416664	83.357506	12.735474	-0.9	-1.1
26	MAK	1981	1003	85.418755	83.357491	12.735323	-0.9	-1.1
26	MAK	1981	1100	85.458336	83.357170	12.732896	-1.2	-0.4
26	MAK	1981	1151	85.493752	83.356766	12.733812	-1.7	1.2
26	MAK	1981	1200	85.500000	83.356682	12.734355	-1.8	1.4
26	MAK	1981	1244	85.530556	83.356194	12.737767	-2.3	1.5
26	MAK	1981	1300	85.541664	83.355980	12.738752	-2.5	1.1
26	MAK	1981	1310	85.548815	83.355843	12.739212	-2.6	0.9
26	MAK	1981	1338	85.568054	83.355438	12.739909	-2.7	0.3
26	MAK	1981	1400	85.583336	83.355133	12.739987	-2.4	-0.1
26	MAK	1981	1430	85.604164	83.354774	12.739501	-1.9	-0.6
26	MAK	1981	1455	85.621529	83.354561	12.738562	-1.3	-1.0
26	MAK	1981	1500	85.625000	83.354523	12.738327	-1.2	-1.0
26	MAK	1981	1526	85.643059	83.354393	12.737006	-0.7	-1.1
26	MAK	1981	1600	85.666884	83.354301	12.735711	-0.4	-0.5
26	MAK	1981	1639	85.693748	83.354202	12.735566	-0.5	0.3
26	MAK	1981	1700	85.708336	83.354134	12.736005	-0.7	0.6
26	MAK	1981	1800	85.750000	83.353920	12.738088	-0.4	0.7
26	MAK	1981	1803	85.752083	83.353912	12.738177	-0.4	0.6
26	MAK	1981	1900	85.791664	83.353912	12.738981	0.4	0.0
26	MAK	1981	2000	85.833336	83.354080	12.738063	0.5	-0.5
26	MAK	1981	2046	85.865273	83.354118	12.736763	-0.2	-0.7
26	MAK	1981	2100	85.875000	83.354088	12.736325	-0.5	-0.7
26	MAK	1981	2200	85.916664	83.353752	12.734193	-1.5	-0.9
26	MAK	1981	2232	85.938896	83.353447	12.732811	-1.9	-1.0
26	MAK	1981	2300	85.958336	83.353134	12.731608	-2.2	-0.9
26	MAK	1981	2323	85.974304	83.352859	12.730771	-2.3	-0.7
27	MAK	1981	0	86.000000	83.352402	12.729574	-2.3	-0.8
27	MAK	1981	18	86.012505	83.352180	12.728792	-2.3	-1.1
27	MAK	1981	100	86.041664	83.351677	12.726360	-2.2	-1.3
27	MAK	1981	111	86.049309	83.351540	12.725733	-2.2	-1.2
27	MAK	1981	200	86.083336	83.350960	12.723787	-2.2	-0.4
27	MAK	1981	259	86.124306	83.350296	12.723855	-1.9	0.2
27	MAK	1981	300	86.125000	83.350288	12.723866	-1.9	0.2
27	MAK	1981	323	86.140968	83.350067	12.724092	-1.6	0.2
27	MAK	1981	400	86.166664	83.349785	12.724250	-1.1	0.0
27	MAK	1981	447	86.199310	83.349586	12.724345	-0.4	0.2
27	MAK	1981	500	86.208336	83.349564	12.724488	-0.3	0.3
27	MAK	1981	511	86.215973	83.349548	12.724677	-0.1	0.4
27	MAK	1981	600	86.250000	83.349564	12.726129	0.1	0.8
27	MAK	1981	634	86.273613	83.349586	12.727420	0.1	0.8
27	MAK	1981	658	86.290276	83.349594	12.728212	0.1	0.6
27	MAK	1981	700	86.291664	83.349594	12.728269	0.1	0.6
27	MAK	1981	725	86.309029	83.349625	12.728776	0.3	0.3
27	MAK	1981	800	86.333336	83.349716	12.728721	0.6	-0.3
27	MAK	1981	900	86.375000	83.349861	12.726905	0.0	-0.7
27	MAK	1981	913	86.384026	83.349854	12.726483	-0.4	-0.7
27	MAK	1981	1000	86.416664	83.349594	12.725491	-1.7	-0.2
27	MAK	1981	1100	86.458336	83.348831	12.726027	-2.8	0.5
27	MAK	1981	1101	86.459023	83.348816	12.726050	-2.8	0.5
27	MAK	1981	1156	86.497223	83.347946	12.727473	-2.9	0.4
27	MAK	1981	1200	86.500000	83.347885	12.727547	-2.8	0.4
27	MAK	1981	1220	86.513885	83.347588	12.727787	-2.7	0.1
27	MAK	1981	1249	86.534027	83.347168	12.727712	-2.7	-0.2
27	MAK	1981	1300	86.541664	83.347008	12.727559	-2.7	-0.4
27	MAK	1981	1342	86.570831	83.346397	12.726632	-2.7	-0.5

# FRAM 3 NAVIGATION - KALMAN

DI	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
27	MAR	1981	1400	86.583336	83.346138	12.726274	-2.6	-0.4
27	MAR	1981	1406	86.587502	83.346054	12.726171	-2.5	-0.3
27	MAR	1981	1436	86.608337	83.345665	12.725784	-2.3	-0.2
27	MAR	1981	1500	86.625000	83.345363	12.725570	-2.1	-0.2
27	MAR	1981	1528	86.644440	83.345085	12.725413	-1.9	-0.1
27	MAR	1981	1552	86.661110	83.344849	12.725402	-1.8	0.0
27	MAR	1981	1600	86.666664	83.344772	12.725427	-1.7	0.1
27	MAR	1981	1700	86.708336	83.344238	12.726020	-1.6	0.3
27	MAR	1981	1738	86.734718	83.343918	12.726522	-1.5	0.3
27	MAR	1981	1800	86.750000	83.343742	12.726757	-1.5	0.2
27	MAR	1981	1900	86.791664	83.343277	12.726940	-1.2	-0.1
27	MAR	1981	1924	86.808327	83.343132	12.726740	-1.0	-0.1
27	MAR	1981	1957	86.831245	83.342979	12.726140	-0.6	-0.9
27	MAR	1981	2000	86.833336	83.342972	12.726064	-0.6	-0.6
27	MAR	1981	2100	86.875000	83.342789	12.723608	-0.8	-1.3
27	MAR	1981	2110	86.881950	83.342735	12.722993	-1.0	-1.4
27	MAR	1981	2144	86.905556	83.342491	12.720618	-1.5	-1.5
27	MAR	1981	2200	86.916664	83.342354	12.719536	-1.7	-1.4
27	MAR	1981	2300	86.958336	83.341782	12.716448	-1.8	-0.8
27	MAR	1981	2330	86.979164	83.341492	12.715549	-1.8	-0.5
28	MAR	1981	0	87.000000	83.341194	12.714972	-2.0	-0.3
28	MAR	1981	22	87.015282	83.340950	12.714707	-2.3	-0.2
28	MAR	1981	43	87.029854	83.340675	12.714596	-2.6	0.0
28	MAR	1981	100	87.041664	83.340424	12.714626	-2.8	0.1
28	MAR	1981	116	87.052773	83.340172	12.714746	-3.1	0.2
28	MAR	1981	200	87.083336	83.339401	12.714865	-3.2	-0.4
28	MAR	1981	206	87.087502	83.339294	12.714738	-3.2	-0.5
28	MAR	1981	300	87.125000	83.338409	12.712036	-2.8	-1.3
28	MAR	1981	302	87.126396	83.338379	12.711916	-2.8	-1.3
28	MAR	1981	400	87.166664	83.337563	12.709138	-2.6	-0.7
28	MAR	1981	418	87.179169	83.337311	12.708695	-2.6	-0.4
28	MAR	1981	500	87.208336	83.336723	12.708379	-2.4	0.0
28	MAR	1981	538	87.234718	83.336304	12.708399	-1.6	0.0
28	MAR	1981	600	87.250000	83.336143	12.708364	-1.0	-0.1
28	MAR	1981	606	87.254173	83.336113	12.708343	-0.8	-0.1
28	MAR	1981	700	87.291664	83.336052	12.708058	0.3	-0.1
28	MAR	1981	800	87.333336	83.336227	12.708027	0.6	0.1
28	MAR	1981	823	87.349304	83.336288	12.708188	0.4	0.2
28	MAR	1981	900	87.375000	83.336327	12.708581	0.0	0.2
28	MAR	1981	1000	87.416664	83.336166	12.708668	-1.1	-0.3
28	MAR	1981	1011	87.424309	83.336090	12.708467	-1.3	-0.5
28	MAR	1981	1100	87.458336	83.335579	12.706576	-2.6	-1.1
28	MAR	1981	1159	87.499306	83.334465	12.702929	-4.3	-1.4
28	MAR	1981	1200	87.500000	83.334442	12.702866	-4.3	-1.4
28	MAR	1981	1300	87.541664	83.332924	12.699065	-4.7	-1.3
28	MAR	1981	1347	87.574310	83.331787	12.696333	-4.1	-1.2
28	MAR	1981	1400	87.583336	83.331505	12.695658	-4.0	-1.1
28	MAR	1981	1424	87.599998	83.331009	12.694546	-3.7	-0.9
28	MAR	1981	1500	87.625000	83.330307	12.693154	-3.5	-0.8
28	MAR	1981	1500	87.625000	83.330307	12.693154	-3.5	-0.8
28	MAR	1981	1534	87.648613	83.329681	12.691796	-3.4	-0.9
28	MAR	1981	1600	87.666664	83.329208	12.690546	-3.3	-1.1
28	MAR	1981	1609	87.672913	83.329048	12.690065	-3.3	-1.2
28	MAR	1981	1646	87.698608	83.328392	12.687960	-3.3	-1.2
28	MAR	1981	1700	87.708336	83.328148	12.687191	-3.2	-1.1
28	MAR	1981	1754	87.745827	83.327248	12.684683	-2.9	-0.8
28	MAR	1981	1800	87.750000	83.327156	12.684456	-2.9	-0.8
28	MAR	1981	1832	87.772224	83.326663	12.683452	-2.6	-0.5
28	MAR	1981	1900	87.791664	83.326302	12.682859	-2.4	-0.4
28	MAR	1981	1958	87.831940	83.325500	12.680591	-2.8	-1.7
28	MAR	1981	2000	87.833336	83.325470	12.680430	-2.8	-1.8
28	MAR	1981	2018	87.845833	83.325188	12.678627	-3.1	-2.5
28	MAR	1981	2054	87.870827	83.324562	12.673398	-3.2	-3.6
28	MAR	1981	2100	87.875000	83.324463	12.672381	-3.2	-3.7
28	MAR	1981	2200	87.916664	83.323524	12.661850	-2.5	-3.4
28	MAR	1981	2300	87.958336	83.322777	12.654577	-2.3	-1.9
28	MAR	1981	2310	87.965279	83.322655	12.653743	-2.4	-1.7
28	MAR	1981	2332	87.980560	83.322357	12.652195	-2.5	-1.4

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
29	MAH	1981	0	88.000000	83.321960	12.650442	-2.7	-1.4
29	MAH	1981	26	88.018059	83.321564	12.648405	-2.9	-2.0
29	MAH	1981	57	88.039581	83.321068	12.644814	-3.0	-3.0
29	MAH	1981	100	88.041664	83.321014	12.644391	-3.1	-3.1
29	MAH	1981	120	88.055550	83.320679	12.641250	-3.1	-3.7
29	MAH	1981	200	88.083336	83.320007	12.633776	-3.0	-4.2
29	MAH	1981	213	88.092354	83.319801	12.631219	-2.9	-4.2
29	MAH	1981	244	88.113892	83.319328	12.625244	-2.7	-4.0
29	MAH	1981	300	88.125000	83.319092	12.622393	-2.7	-3.7
29	MAH	1981	308	88.130554	83.318977	12.621046	-2.7	-3.6
29	MAH	1981	400	88.166664	83.318253	12.613318	-2.5	-3.0
29	MAH	1981	430	88.187500	83.317856	12.609204	-2.4	-3.0
29	MAH	1981	456	88.205559	83.317535	12.605501	-2.3	-3.2
29	MAH	1981	500	88.208336	83.317490	12.604905	-2.3	-3.2
29	MAH	1981	600	88.250000	83.316795	12.594595	-2.0	-4.3
29	MAH	1981	616	88.261188	83.316628	12.591239	-1.9	-4.7
29	MAH	1981	644	88.280556	83.316360	12.584772	-1.7	-5.2
29	MAH	1981	700	88.291664	83.316223	12.580886	-1.6	-5.3
29	MAH	1981	734	88.315277	83.315948	12.572695	-1.4	-5.0
29	MAH	1981	800	88.333336	83.315758	12.567083	-1.3	-4.3
29	MAH	1981	900	88.375000	83.315262	12.556417	-1.0	-3.6
29	MAH	1981	921	88.389587	83.315010	12.552841	-2.4	-3.7
29	MAH	1981	1000	88.416664	83.314392	12.545928	-3.5	-3.9
29	MAH	1981	1100	88.458336	83.313057	12.534837	-4.6	-4.0
29	MAH	1981	1109	88.464577	83.312828	12.533148	-4.7	-4.1
29	MAH	1981	1132	88.480560	83.312233	12.528768	-4.8	-4.2
29	MAH	1981	1200	88.500000	83.311501	12.523098	-4.9	-4.6
29	MAH	1981	1205	88.503471	83.311363	12.522028	-4.8	-4.7
29	MAH	1981	1257	88.539581	83.309967	12.509789	-5.2	-5.4
29	MAH	1981	1300	88.541664	83.309883	12.509028	-5.3	-5.5
29	MAH	1981	1317	88.553474	83.309387	12.504629	-5.5	-5.7
29	MAH	1981	1351	88.577087	83.308334	12.495419	-5.9	-6.0
29	MAH	1981	1400	88.583336	83.308044	12.492926	-6.0	-6.0
29	MAH	1981	1444	88.613892	83.306572	12.480916	-6.4	-5.6
29	MAH	1981	1500	88.625000	83.306015	12.476899	-6.5	-5.2
29	MAH	1981	1537	88.650696	83.304710	12.468626	-6.6	-4.4
29	MAH	1981	1600	88.666664	83.303894	12.464168	-6.5	-4.0
29	MAH	1981	1700	88.708336	83.301788	12.454688	-6.5	-3.0
29	MAH	1981	1723	88.724304	83.300980	12.451688	-6.5	-2.7
29	MAH	1981	1740	88.736115	83.300377	12.449616	-6.6	-2.6
29	MAH	1981	1800	88.750000	83.299660	12.447263	-6.7	-2.5
29	MAH	1981	1900	88.791664	83.297310	12.440141	-6.0	-2.9
29	MAH	1981	1910	88.798615	83.296867	12.438786	-6.3	-3.0
29	MAH	1981	2000	88.833336	83.294540	12.430636	-6.4	-4.2
29	MAH	1981	2005	88.836800	83.294312	12.429661	-6.2	-4.3
29	MAH	1981	2100	88.875000	83.292152	12.417528	-6.2	-4.9
29	MAH	1981	2200	88.916664	83.290443	12.405857	-4.8	-3.1
29	MAH	1981	2243	88.946526	83.289314	12.401584	-5.0	-1.4
29	MAH	1981	2300	88.958336	83.288849	12.400662	-5.2	-1.0
29	MAH	1981	2338	88.984718	83.287758	12.399049	-5.4	-1.1
30	MAH	1981	0	89.000000	83.287117	12.397692	-5.4	-1.6
30	MAH	1981	31	89.021523	83.286201	12.395226	-5.6	-1.8
30	MAH	1981	100	89.041664	83.285309	12.392969	-5.7	-1.6
30	MAH	1981	124	89.058327	83.284561	12.391365	-5.8	-1.3
30	MAH	1981	200	89.083336	83.283432	12.389524	-5.8	-0.9
30	MAH	1981	219	89.096527	83.282629	12.388697	-5.9	-0.8
30	MAH	1981	300	89.125000	83.281494	12.387583	-6.2	-1.2
30	MAH	1981	310	89.131950	83.281158	12.386956	-6.3	-1.6
30	MAH	1981	400	89.166664	83.279427	12.381795	-6.5	-2.5
30	MAH	1981	406	89.170837	83.279221	12.381091	-6.5	-2.5
30	MAH	1981	500	89.208336	83.277328	12.375252	-6.4	-2.1
30	MAH	1981	554	89.245827	83.275482	12.370875	-6.2	-1.5
30	MAH	1981	600	89.250000	83.275284	12.370465	-6.2	-1.5
30	MAH	1981	644	89.280556	83.273834	12.368126	-5.9	-0.7
30	MAH	1981	700	89.291664	83.273323	12.367785	-5.8	-0.2
30	MAH	1981	742	89.320831	83.272018	12.368049	-5.8	0.3
30	MAH	1981	800	89.333336	83.271454	12.368320	-5.8	0.3
30	MAH	1981	831	89.354858	83.270477	12.368669	-5.8	0.2

FRAM 3 NAVIGATION - KALMAN

DX	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
30	MAK	1981	900	89.375000	83.269502	12.368970	-5.9	0.3
30	MAK	1981	1000	89.416664	83.267624	12.371383	-6.1	1.9
30	MAK	1981	1019	89.429863	83.266991	12.373365	-6.3	2.7
30	MAK	1981	1100	89.458336	83.265549	12.379119	-6.7	3.0
30	MAK	1981	1116	89.469444	83.264961	12.381171	-6.9	2.6
30	MAK	1981	1200	89.500000	83.263268	12.384577	-7.4	0.7
30	MAK	1981	1300	89.541664	83.260742	12.383251	-8.2	1.2
30	MAK	1981	1302	89.543060	83.260651	12.383142	-8.2	1.2
30	MAK	1981	1400	89.583336	83.257980	12.379960	-8.7	0.9
30	MAK	1981	1500	89.625000	83.255142	12.378778	-8.6	0.1
30	MAK	1981	1600	89.666664	83.252434	12.379810	-8.1	0.5
30	MAK	1981	1634	89.690277	83.250984	12.380582	-7.7	0.4
30	MAK	1981	1700	89.708336	83.249901	12.381004	-7.6	0.3
30	MAK	1981	1800	89.750000	83.247391	12.380946	-8.2	0.4
30	MAK	1981	1821	89.764587	83.246437	12.380486	-8.6	0.6
30	MAK	1981	1900	89.791664	83.244514	12.378869	-9.6	1.1
30	MAK	1981	2000	89.833336	83.241257	12.374761	-10.3	1.8
30	MAK	1981	2100	89.875000	83.237984	12.369360	-9.6	2.1
30	MAK	1981	2200	89.916664	83.235100	12.363748	-8.1	1.9
30	MAK	1981	2240	89.944450	83.233459	12.360583	-7.1	1.5
30	MAK	1981	2300	89.958336	83.232712	12.359303	-6.8	1.3
30	MAK	1981	2342	89.987495	83.231194	12.357397	-6.7	0.7
31	MAK	1981	0	90.000000	83.230522	12.356925	-7.0	0.4
31	MAK	1981	100	90.041664	83.228142	12.356352	-7.7	0.1
31	MAK	1981	129	90.061806	83.226906	12.356080	-8.0	0.3
31	MAK	1981	200	90.083336	83.225540	12.355526	-8.2	0.5
31	MAK	1981	213	90.092354	83.224496	12.355167	-8.3	0.6
31	MAK	1981	300	90.125000	83.222847	12.353601	-8.3	0.9
31	MAK	1981	317	90.136810	83.222092	12.352913	-8.2	0.9
31	MAK	1981	359	90.165977	83.220261	12.351042	-8.0	1.0
31	MAK	1981	400	90.166664	83.220215	12.350695	-8.0	1.0
31	MAK	1981	500	90.208336	83.217674	12.347902	-7.8	1.2
31	MAK	1981	505	90.211800	83.217461	12.347621	-7.8	1.2
31	MAK	1981	600	90.250000	83.215141	12.344645	-7.8	1.0
31	MAK	1981	653	90.286804	83.212929	12.343397	-7.6	0.1
31	MAK	1981	700	90.291664	83.212646	12.343455	-7.6	0.3
31	MAK	1981	800	90.333336	83.210274	12.342325	-7.0	1.8
31	MAK	1981	900	90.375000	83.208092	12.342402	-6.4	2.5
31	MAK	1981	1000	90.416664	83.206108	12.345867	-5.9	1.9
31	MAK	1981	1100	90.458336	83.204269	12.346195	-5.5	1.0
31	MAK	1981	1200	90.500000	83.202484	12.346115	-5.5	0.8
31	MAK	1981	1214	90.509727	83.202065	12.346058	-5.6	1.0
31	MAK	1981	1300	90.541664	83.200661	12.345851	-5.8	0.8
31	MAK	1981	1305	90.545135	83.200500	12.345834	-5.8	0.7
31	MAK	1981	1400	90.583336	83.198692	12.345752	-6.4	0.0
31	MAK	1981	1400	90.583336	83.198692	12.345752	-6.4	0.0
31	MAK	1981	1431	90.604858	83.197578	12.345768	-6.8	0.2
31	MAK	1981	1453	90.620140	83.196762	12.345801	-6.9	0.4
31	MAK	1981	1500	90.625000	83.196503	12.345815	-6.9	0.5
31	MAK	1981	1546	90.656944	83.194794	12.345925	-6.8	0.4
31	MAK	1981	1600	90.666664	83.194283	12.345949	-6.8	0.3
31	MAK	1981	1616	90.677773	83.193695	12.345967	-6.8	0.2
31	MAK	1981	1700	90.708336	83.192078	12.345986	-6.9	0.0
31	MAK	1981	1732	90.730560	83.190872	12.345984	-7.1	0.1
31	MAK	1981	1800	90.750000	83.189766	12.345941	-7.6	0.6
31	MAK	1981	1801	90.750694	83.189728	12.345938	-7.6	0.6
31	MAK	1981	1900	90.791664	83.187134	12.345576	-8.6	2.0
31	MAK	1981	1918	90.804169	83.186295	12.345395	-8.7	2.4
31	MAK	1981	2000	90.833336	83.184349	12.344893	-8.1	2.8
31	MAK	1981	2013	90.842354	83.183800	12.344729	-7.6	2.8
31	MAK	1981	2100	90.875000	83.182121	12.341203	-5.6	3.0
31	MAK	1981	2200	90.916664	83.180595	12.333018	-4.2	2.8
31	MAK	1981	2200	90.916664	83.180595	12.333018	-4.2	2.8
31	MAK	1981	2252	90.952782	83.179382	12.332813	-4.5	1.0
31	MAK	1981	2300	90.958336	83.179192	12.332784	-4.5	0.6
31	MAK	1981	2318	90.970833	83.178741	12.332770	-4.6	0.2
31	MAK	1981	2346	90.990273	83.178047	12.332834	-4.5	0.6
1	APR	1981	0	91.000000	83.177711	12.332870	-4.4	0.5

# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	APR	1981	40	91.027779	83.176811	12.329199	-4.0	0.0
1	APR	1981	100	91.041004	83.176376	12.329051	-4.0	-0.3
1	APR	1981	104	91.044441	83.176292	12.328988	-3.9	-0.4
1	APR	1981	132	91.063896	83.175697	12.328222	-4.0	-0.8
1	APR	1981	200	91.083336	83.175079	12.326834	-4.2	-1.3
1	APR	1981	228	91.102776	83.174408	12.324905	-4.6	-1.7
1	APR	1981	300	91.125000	83.173569	12.322313	-5.1	-1.9
1	APR	1981	400	91.166664	83.171883	12.317113	-5.1	-1.9
1	APR	1981	416	91.177773	83.171448	12.315722	-4.9	-1.9
1	APR	1981	500	91.208336	83.170349	12.311814	-4.3	-2.0
1	APR	1981	600	91.250000	83.169006	12.305711	-4.1	-2.4
1	APR	1981	604	91.252777	83.168915	12.305265	-4.1	-2.5
1	APR	1981	652	91.286110	83.167816	12.299850	-4.4	-2.4
1	APR	1981	700	91.291004	83.167033	12.299010	-4.4	-2.3
1	APR	1981	751	91.327087	83.166382	12.294584	-4.5	-1.5
1	APR	1981	800	91.333336	83.166161	12.294007	-4.5	-1.3
1	APR	1981	840	91.361115	83.165237	12.292183	-3.9	-0.7
1	APR	1981	900	91.375000	83.164841	12.291595	-3.5	-0.6
1	APR	1981	1000	91.416664	83.163933	12.290771	-2.2	-0.1
1	APR	1981	1027	91.435417	83.163635	12.290802	-1.8	0.1
1	APR	1981	1100	91.458336	83.163315	12.291032	-1.9	0.2
1	APR	1981	1125	91.475700	83.163048	12.291180	-2.2	0.1
1	APR	1981	1200	91.500000	83.162575	12.291136	-2.8	-0.1
1	APR	1981	1215	91.510414	83.162331	12.290998	-3.1	-0.3
1	APR	1981	1300	91.541004	83.161522	12.290102	-3.5	-0.6
1	APR	1981	1312	91.549995	83.161285	12.289739	-3.6	-0.7
1	APR	1981	1400	91.583336	83.160316	12.286089	-3.9	-0.7
1	APR	1981	1403	91.585419	83.160255	12.287999	-3.9	-0.6
1	APR	1981	1458	91.623004	83.159019	12.286297	-4.5	-1.1
1	APR	1981	1500	91.625000	83.158974	12.286200	-4.5	-1.1
1	APR	1981	1600	91.666664	83.157433	12.281024	-4.9	-2.8
1	APR	1981	1644	91.697227	83.156273	12.274418	-4.9	-3.8
1	APR	1981	1700	91.708336	83.155853	12.271609	-4.9	-4.0
1	APR	1981	1800	91.750000	83.154198	12.260396	-5.6	-4.0
1	APR	1981	1830	91.770836	83.153244	12.255182	-6.2	-3.7
1	APR	1981	1900	91.791664	83.152199	12.250455	-6.6	-3.3
1	APR	1981	1924	91.808327	83.151337	12.246939	-6.7	-3.2
1	APR	1981	2000	91.833336	83.150055	12.241866	-6.4	-3.1
1	APR	1981	2100	91.875000	83.148178	12.232905	-5.0	-3.6
1	APR	1981	2200	91.916664	83.146851	12.222075	-3.3	-4.3
1	APR	1981	2256	91.955559	83.145996	12.210647	-2.5	-4.3
1	APR	1981	2300	91.958336	83.145943	12.210067	-2.5	-4.3
1	APR	1981	2351	91.993752	83.145279	12.201135	-2.4	-3.3
2	APR	1981	0	92.000000	83.145157	12.199851	-2.5	-3.0
2	APR	1981	42	92.029167	83.144600	12.195058	-2.3	-2.1
2	APR	1981	100	92.041664	83.144386	12.193419	-2.1	-1.9
2	APR	1981	138	92.066054	83.143967	12.190303	-2.1	-1.8
2	APR	1981	200	92.093336	83.143707	12.186405	-2.3	-2.0
2	APR	1981	229	92.103477	83.143311	12.185477	-2.8	-2.5
2	APR	1981	300	92.125000	83.142799	12.181584	-3.3	-3.1
2	APR	1981	326	92.143059	83.142311	12.177757	-3.6	-3.4
2	APR	1981	400	92.166664	83.141647	12.172270	-3.7	-3.7
2	APR	1981	500	92.208336	83.140488	12.162533	-3.3	-3.4
2	APR	1981	600	92.250000	83.139496	12.154491	-2.8	-2.5
2	APR	1981	700	92.291664	83.138626	12.148773	-2.6	-1.7
2	APR	1981	750	92.326385	83.137924	12.145388	-2.6	-1.3
2	APR	1981	800	92.333336	83.137779	12.144809	-2.6	-1.3
2	APR	1981	900	92.375000	83.136948	12.141706	-2.4	-1.1
2	APR	1981	938	92.401390	83.136490	12.139840	-2.1	-1.1
2	APR	1981	1000	92.416664	83.136261	12.138794	-1.8	-1.0
2	APR	1981	1100	92.458336	83.135773	12.136518	-1.2	-0.5
2	APR	1981	1126	92.476387	83.135605	12.136108	-1.1	-0.2
2	APR	1981	1200	92.500000	83.135429	12.136174	-0.9	0.2
2	APR	1981	1300	92.541664	83.135139	12.136908	-1.0	0.1
2	APR	1981	1313	92.550690	83.135071	12.136402	-1.0	-0.1
2	APR	1981	1400	92.583336	83.134773	12.135862	-1.3	-0.9
2	APR	1981	1500	92.625000	83.134285	12.132126	-1.7	-1.8
2	APR	1981	1501	92.625094	83.134277	12.132043	-1.7	-1.8

# FRAM 3 NAVIGATION - KALMAR

DT	MO	YEAR	GMT	JULIAY	LATITUDE	LONGITUDE	H-VEL.	E-VEL.
2	APR	1981	1600	92.666664	83.133075	12.126275	-2.2	-2.4
2	APR	1981	1700	92.708336	83.132813	12.119281	-3.2	-2.7
2	APR	1981	1800	92.750000	83.131561	12.111812	-4.5	-2.3
2	APR	1981	1900	92.791664	83.129574	12.104608	-5.1	-3.0
2	APR	1981	1912	92.799995	83.129646	12.102377	-5.1	-3.0
2	APR	1981	2000	92.833336	83.128380	12.095483	-4.4	-3.4
2	APR	1981	2021	92.847923	83.127922	12.092206	-3.7	-3.0
2	APR	1981	2100	92.875000	83.127266	12.085601	-2.5	-3.9
2	APR	1981	2200	92.916664	83.126709	12.074725	-1.1	-4.1
2	APR	1981	2207	92.921532	83.126671	12.073421	-1.0	-4.1
2	APR	1981	2244	92.947227	83.126518	12.066530	-0.5	-4.1
2	APR	1981	2300	92.958336	83.126480	12.063570	-0.3	-4.1
2	APR	1981	2353	92.995140	83.126465	12.054013	0.1	-3.9
3	APR	1981	0	93.000000	83.126472	12.052798	0.1	-3.8
3	APR	1981	30	93.020836	83.126488	12.047714	0.1	-3.7
3	APR	1981	100	93.041664	83.126511	12.042732	0.1	-3.7
3	APR	1981	140	93.069450	83.126518	12.036197	0.0	-3.6
3	APR	1981	200	93.083336	83.126518	12.033014	-0.1	-3.5
3	APR	1981	300	93.125000	83.126472	12.023532	-0.2	-3.6
3	APR	1981	400	93.166664	83.126358	12.012693	-0.5	-4.5
3	APR	1981	500	93.208336	83.126160	11.998413	-0.8	-6.1
3	APR	1981	600	93.250000	83.125862	11.980217	-1.1	-7.2
3	APR	1981	613	93.259026	83.125786	11.975965	-1.2	-7.3
3	APR	1981	700	93.291664	83.125458	11.960538	-1.4	-7.0
3	APR	1981	700	93.291664	83.125458	11.960538	-1.4	-7.0
3	APR	1981	800	93.333336	83.124902	11.943336	-1.5	-5.6
3	APR	1981	848	93.380069	83.124588	11.932410	-1.4	-4.5
3	APR	1981	900	93.375000	83.124490	11.930014	-1.3	-4.3
3	APR	1981	1000	93.416664	83.124138	11.919731	-0.9	-3.3
3	APR	1981	1036	93.441673	83.123978	11.914914	-0.8	-2.8
3	APR	1981	1100	93.458336	83.123880	11.912299	-0.7	-2.2
3	APR	1981	1200	93.500000	83.123095	11.907523	-0.5	-1.0
3	APR	1981	1224	93.510663	83.123627	11.907027	-0.5	-0.6
3	APR	1981	1300	93.541664	83.123528	11.906501	-0.5	-0.1
3	APR	1981	1400	93.583336	83.123405	11.906944	-0.3	0.2
3	APR	1981	1411	93.590973	83.123390	11.907054	-0.2	0.2
3	APR	1981	1500	93.625000	83.123337	11.907223	-0.2	-0.1
3	APR	1981	1559	93.659977	83.123169	11.906335	-1.0	-0.6
3	APR	1981	1600	93.666664	83.123181	11.906306	-1.0	-0.5
3	APR	1981	1700	93.708336	83.122643	11.903956	-2.3	-1.1
3	APR	1981	1800	93.750000	83.121681	11.900222	-3.6	-1.0
3	APR	1981	1900	93.791664	83.120338	11.895036	-4.5	-2.2
3	APR	1981	1932	93.813896	83.119530	11.891544	-4.8	-2.6
3	APR	1981	2000	93.833336	83.118790	11.887994	-5.0	-3.0
3	APR	1981	2100	93.875000	83.117165	11.879411	-4.9	-3.1
3	APR	1981	2118	93.887505	83.116699	11.877038	-4.7	-2.8
3	APR	1981	2139	93.902077	83.116180	11.874673	-4.4	-2.2
3	APR	1981	2200	93.916664	83.115692	11.872955	-4.1	-1.4
3	APR	1981	2300	93.958336	83.114532	11.871352	-2.9	-0.2
3	APR	1981	2304	93.961113	83.114471	11.871325	-2.9	-0.1
4	APR	1981	0	94.000000	83.113785	11.870482	-1.8	-0.8
4	APR	1981	50	94.034721	83.113396	11.867855	-1.1	-1.3
4	APR	1981	100	94.041664	83.113335	11.867255	-1.0	-1.3
4	APR	1981	111	94.049309	83.113281	11.866614	-0.9	-1.3
4	APR	1981	200	94.083336	83.113113	11.864483	-0.4	-0.5
4	APR	1981	258	94.123004	83.112999	11.864085	-0.4	0.0
4	APR	1981	300	94.125000	83.112991	11.864084	-0.5	0.0
4	APR	1981	400	94.166664	83.112776	11.863465	-0.9	-0.5
4	APR	1981	500	94.208336	83.112427	11.861057	-1.2	-1.2
4	APR	1981	520	94.222221	83.112305	11.859893	-1.2	-1.4
4	APR	1981	600	94.250000	83.112036	11.857060	-1.3	-1.8
4	APR	1981	700	94.291664	83.111565	11.851151	-1.8	-2.7
4	APR	1981	707	94.296532	83.111486	11.850287	-1.9	-2.4
4	APR	1981	800	94.333336	83.110855	11.842666	-2.5	-3.6
4	APR	1981	900	94.375000	83.109962	11.832331	-2.9	-3.8
4	APR	1981	1000	94.416664	83.109085	11.822736	-2.4	-3.1
4	APR	1981	1100	94.458336	83.108407	11.816049	-1.3	-1.6
4	APR	1981	1134	94.481941	83.108307	11.813858	-0.5	-1.1

# TABLE 3 NAVIGATION - KALAM.

UT	APR	1981	GPR	UT	APR	1981	LONGITUDE	P-VEL.	C-VEL.
4	APR	1981	1200	4	APR	1981	11.812264	0.1	-9.5
4	APR	1981	1220	4	APR	1981	11.812275	0.6	-9.3
4	APR	1981	1300	4	APR	1981	11.811934	1.1	-9.2
4	APR	1981	1322	4	APR	1981	11.811725	1.4	-9.2
4	APR	1981	1400	4	APR	1981	11.810905	1.0	-9.9
4	APR	1981	1414	4	APR	1981	11.810237	1.6	-1.3
4	APR	1981	1500	4	APR	1981	11.808845	0.8	-2.8
4	APR	1981	1509	4	APR	1981	11.808227	0.5	-3.2
4	APR	1981	1600	4	APR	1981	11.795522	-0.7	-4.6
4	APR	1981	1600	4	APR	1981	11.795527	-0.7	-4.8
4	APR	1981	1700	4	APR	1981	11.780107	-1.5	-6.5
4	APR	1981	1740	4	APR	1981	11.764799	-1.9	-8.2
4	APR	1981	1800	4	APR	1981	11.759457	-2.0	-8.4
4	APR	1981	1900	4	APR	1981	11.732894	-2.5	-10.9
4	APR	1981	1932	4	APR	1981	11.716467	-2.6	-11.9
4	APR	1981	2000	4	APR	1981	11.700945	-2.7	-12.7
4	APR	1981	2100	4	APR	1981	11.684680	-2.6	-14.0
4	APR	1981	2200	4	APR	1981	11.625795	-2.1	-14.7
4	APR	1981	2300	4	APR	1981	11.586098	-1.4	-14.7
4	APR	1981	0	4	APR	1981	11.546885	-0.6	-14.4
5	APR	1981	100	5	APR	1981	11.508764	0.3	-13.9
5	APR	1981	200	5	APR	1981	11.471367	1.2	-13.9
5	APR	1981	239	5	APR	1981	11.446806	1.6	-14.2
5	APR	1981	300	5	APR	1981	11.433293	2.1	-14.5
5	APR	1981	400	5	APR	1981	11.392737	3.0	-15.8
5	APR	1981	427	5	APR	1981	11.373068	3.4	-16.6
5	APR	1981	500	5	APR	1981	11.347715	3.8	-17.5
5	APR	1981	600	5	APR	1981	11.294219	4.3	-18.2
5	APR	1981	615	5	APR	1981	11.286982	4.4	-18.1
5	APR	1981	700	5	APR	1981	11.250374	4.2	-18.1
5	APR	1981	800	5	APR	1981	11.200765	2.9	-18.9
5	APR	1981	802	5	APR	1981	11.199060	2.8	-18.9
5	APR	1981	900	5	APR	1981	11.148258	1.3	-20.0
5	APR	1981	1000	5	APR	1981	11.093825	0.6	-20.1
5	APR	1981	1100	5	APR	1981	11.041203	1.1	-18.7
5	APR	1981	1136	5	APR	1981	11.012063	1.6	-17.3
5	APR	1981	1200	5	APR	1981	10.993942	1.8	-16.3
5	APR	1981	1300	5	APR	1981	10.952434	1.3	-14.6
5	APR	1981	1322	5	APR	1981	10.938131	0.7	-14.3
5	APR	1981	1400	5	APR	1981	10.914059	-0.1	-13.9
5	APR	1981	1500	5	APR	1981	10.876135	0.2	-14.3
5	APR	1981	1508	5	APR	1981	10.870450	0.4	-14.5
5	APR	1981	1600	5	APR	1981	10.836024	1.0	-15.4
5	APR	1981	1654	5	APR	1981	10.797703	1.8	-16.0
5	APR	1981	1700	5	APR	1981	10.793367	1.7	-16.1
5	APR	1981	1737	5	APR	1981	10.768583	0.7	-16.1
5	APR	1981	1800	5	APR	1981	10.750026	-0.1	-15.9
5	APR	1981	1840	5	APR	1981	10.721410	-0.6	-15.9
5	APR	1981	1900	5	APR	1981	10.707686	-0.4	-15.9
5	APR	1981	2000	5	APR	1981	10.663879	0.5	-16.0
5	APR	1981	2026	5	APR	1981	10.645172	1.0	-15.9
5	APR	1981	2100	5	APR	1981	10.620429	1.3	-15.7
5	APR	1981	2200	5	APR	1981	10.579434	0.6	-14.5
5	APR	1981	2254	5	APR	1981	10.547106	-0.8	-12.5
5	APR	1981	2300	5	APR	1981	10.543766	-1.0	-12.2
6	APR	1981	0	6	APR	1981	10.513993	-2.0	-9.4
6	APR	1981	100	6	APR	1981	10.489884	-2.9	-8.1
6	APR	1981	200	6	APR	1981	10.469163	-2.1	-7.4
6	APR	1981	227	6	APR	1981	10.460246	-1.0	-7.3
6	APR	1981	300	6	APR	1981	10.449402	-1.2	-7.3
6	APR	1981	334	6	APR	1981	10.438134	-1.3	-7.4
6	APR	1981	400	6	APR	1981	10.429297	-1.5	-7.7
6	APR	1981	500	6	APR	1981	10.407118	-2.3	-9.0
6	APR	1981	522	6	APR	1981	10.397930	-2.5	-9.6
6	APR	1981	600	6	APR	1981	10.380840	-2.7	-10.2
6	APR	1981	600	6	APR	1981	10.380840	-2.7	-10.2
6	APR	1981	618	6	APR	1981	10.372547	-2.7	-10.2
6	APR	1981	700	6	APR	1981	10.353793	-2.9	-9.5



# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
0	APR	1981	800	96.3333336	83.1063337	10.330654	-3.7	-7.8
0	APR	1981	806	96.3375002	83.108215	10.328575	-3.8	-7.6
0	APR	1981	900	96.3750000	83.106934	10.311487	-5.0	-6.5
0	APR	1981	1000	96.4166664	83.105118	10.295247	-6.2	-5.5
0	APR	1981	1100	96.4583336	83.103012	10.281322	-6.6	-4.8
0	APR	1981	1142	96.487495	83.101570	10.272367	-6.0	-4.7
0	APR	1981	1200	96.5000000	83.101013	10.268534	-5.5	-4.8
0	APR	1981	1230	96.5208336	83.100197	10.261988	-4.5	-5.0
0	APR	1981	1300	96.5416664	83.099541	10.255227	-3.6	-5.0
0	APR	1981	1330	96.5625000	83.099022	10.248586	-2.9	-4.8
0	APR	1981	1400	96.5833336	83.098587	10.242530	-2.5	-4.2
0	APR	1981	1500	96.6250000	83.097786	10.232672	-2.6	-3.2
0	APR	1981	1517	96.636810	83.097542	10.230258	-2.7	-3.1
0	APR	1981	1600	96.6666664	83.096863	10.224518	-3.0	-2.9
0	APR	1981	1602	96.6680660	83.096632	10.224257	-3.0	-2.9
0	APR	1981	1630	96.6875000	83.096359	10.220637	-3.1	-2.8
0	APR	1981	1700	96.7083336	83.095856	10.216973	-3.2	-2.6
0	APR	1981	1800	96.7500000	83.094803	10.209918	-3.3	-2.9
0	APR	1981	1851	96.785423	83.093849	10.201816	-3.5	-4.4
0	APR	1981	1900	96.7916664	83.093681	10.199945	-3.6	-4.4
0	APR	1981	2000	96.8333336	83.092560	10.183435	-3.2	-7.4
0	APR	1981	2037	96.859032	83.091972	10.170089	-2.8	-8.5
0	APR	1981	2100	96.8750000	83.091637	10.161235	-2.7	-8.6
0	APR	1981	2146	96.906944	83.090942	10.144746	-3.0	-7.0
0	APR	1981	2200	96.9166664	83.090706	10.140620	-3.2	-6.1
0	APR	1981	2223	96.932640	83.090286	10.134943	-3.4	-4.9
0	APR	1981	2300	96.9583336	83.089622	10.127957	-3.1	-3.7
7	APR	1981	0	97.0000000	83.088745	10.118973	-2.3	-3.2
7	APR	1981	9	97.006248	83.088631	10.117686	-2.2	-3.2
7	APR	1981	54	97.037498	83.088120	10.111573	-2.1	-2.7
7	APR	1981	100	97.0416664	83.088051	10.110869	-2.1	-2.5
7	APR	1981	118	97.054169	83.087837	10.108971	-2.2	-2.2
7	APR	1981	156	97.080559	83.087395	10.105667	-2.1	-1.8
7	APR	1981	200	97.0833336	83.087349	10.105339	-2.0	-1.8
7	APR	1981	242	97.112495	83.086929	10.101826	-1.6	-1.9
7	APR	1981	300	97.1250000	83.086792	10.100310	-1.4	-1.9
7	APR	1981	400	97.1666664	83.086456	10.095134	-0.8	-2.0
7	APR	1981	429	97.186806	83.086334	10.092378	-0.8	-2.2
7	APR	1981	500	97.2083336	83.086197	10.089025	-0.9	-2.6
7	APR	1981	600	97.2500000	83.085724	10.080652	-2.3	-3.6
7	APR	1981	617	97.261810	83.085487	10.077761	-2.8	-3.9
7	APR	1981	632	97.272224	83.085236	10.075036	-3.3	-4.2
7	APR	1981	700	97.2916664	83.084686	10.069708	-4.0	-4.3
7	APR	1981	716	97.302773	83.084335	10.066699	-4.2	-4.1
7	APR	1981	800	97.3333336	83.083359	10.059279	-3.8	-3.3
7	APR	1981	804	97.336113	83.083275	10.058701	-3.7	-3.2
7	APR	1981	900	97.3750000	83.082268	10.052107	-3.2	-2.3
7	APR	1981	904	97.377777	83.082199	10.051699	-3.3	-2.3
7	APR	1981	1000	97.4166664	83.081131	10.046225	-3.9	-2.2
7	APR	1981	1052	97.452782	83.079971	10.041260	-4.2	-2.0
7	APR	1981	1100	97.4583336	83.079796	10.040544	-4.2	-2.0
7	APR	1981	1200	97.5000000	83.078514	10.036138	-3.5	-1.2
7	APR	1981	1240	97.527777	83.077858	10.034655	-2.6	-0.5
7	APR	1981	1300	97.5416664	83.077549	10.034398	-2.1	-0.1
7	APR	1981	1400	97.5833336	83.077141	10.034851	-0.8	0.2
7	APR	1981	1428	97.602776	83.077049	10.035039	-0.4	0.0
7	APR	1981	1500	97.6250000	83.077019	10.034865	0.0	-0.3
7	APR	1981	1600	97.6666664	83.077026	10.033075	-0.1	-1.0
7	APR	1981	1700	97.7083336	83.076836	10.029469	-1.1	-1.6
7	APR	1981	1711	97.715973	83.076754	10.028670	-1.4	-1.7
7	APR	1981	1800	97.7500000	83.076263	10.024788	-2.3	-1.9
7	APR	1981	1900	97.7916664	83.075432	10.019623	-2.6	-2.0
7	APR	1981	1948	97.8250005	83.074799	10.015370	-2.2	-2.0
7	APR	1981	2000	97.8333336	83.074669	10.014299	-2.0	-2.0
7	APR	1981	2100	97.8750000	83.074120	10.008972	-1.4	-1.9
7	APR	1981	2134	97.898613	83.073668	10.006098	-1.3	-1.8
7	APR	1981	2200	97.9166664	83.073677	10.004694	-1.4	-1.8
7	APR	1981	2210	97.923615	83.073601	10.003394	-1.4	-1.5

# FRAM 3 NAVIGATION - KALMAN

UT	MON	YEAR	GAT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	APR	1981	2300	97.958336	83.073235	10.000675	-1.3	-0.9
7	APR	1981	2320	97.972221	83.073105	10.000640	-1.1	-0.6
7	APR	1981	2356	97.997223	83.072922	9.999221	-0.8	-0.6
8	APR	1981	0	98.000000	83.072906	9.999108	-0.7	-0.6
8	APR	1981	100	98.041664	83.072784	9.996584	0.0	-1.1
8	APR	1981	106	98.045837	83.072784	9.996280	0.1	-1.1
8	APR	1981	148	98.075005	83.072868	9.994096	0.5	-1.2
8	APR	1981	200	98.083336	83.072699	9.993479	0.5	-1.1
8	APR	1981	252	98.119446	83.073112	9.990867	1.2	-1.1
8	APR	1981	300	98.125000	83.073174	9.990471	1.5	-1.1
8	APR	1981	400	98.166664	83.073967	9.987473	3.6	-1.2
8	APR	1981	500	98.208336	83.075516	9.984119	5.9	-1.4
8	APR	1981	600	98.250000	83.077698	9.979901	7.3	-1.8
8	APR	1981	626	98.268059	83.078743	9.977658	7.6	-2.1
8	APR	1981	700	98.291864	83.080162	9.974270	7.8	-2.4
8	APR	1981	800	98.333336	83.082649	9.966823	7.4	-3.2
8	APR	1981	900	98.375000	83.084885	9.957176	6.3	-4.0
8	APR	1981	1000	98.416664	83.086700	9.945393	5.0	-4.7
8	APR	1981	1100	98.458336	83.088158	9.932367	4.2	-4.9
8	APR	1981	1150	98.493050	83.089287	9.921938	4.4	-4.3
8	APR	1981	1200	98.500000	83.089531	9.920040	4.5	-4.1
8	APR	1981	1250	98.534721	83.090889	9.911964	5.6	-3.0
8	APR	1981	1300	98.541664	83.091209	9.910683	5.9	-2.7
8	APR	1981	1338	98.568054	83.092522	9.906743	6.8	-2.0
8	APR	1981	1400	98.583336	83.093353	9.904868	7.2	-1.8
8	APR	1981	1436	98.608337	83.094810	9.901747	7.8	-2.2
8	APR	1981	1500	98.625000	83.095856	9.898864	8.2	-3.2
8	APR	1981	1525	98.642365	83.096970	9.894423	8.3	-4.8
8	APR	1981	1600	98.666664	83.098564	9.885140	8.7	-6.9
8	APR	1981	1622	98.681946	83.099638	9.877799	9.4	-7.9
8	APR	1981	1700	98.708336	83.101784	9.863653	11.6	-8.5
8	APR	1981	1800	98.750000	83.106247	9.841662	15.8	-7.6
8	APR	1981	1808	98.755554	83.106941	9.838983	16.4	-7.3
8	APR	1981	1659	98.790977	83.111702	9.823568	17.4	-6.2
8	APR	1981	1900	98.791664	83.111801	9.823291	17.4	-6.2
8	APR	1981	2000	98.833336	83.117058	9.807665	14.6	-5.5
8	APR	1981	2100	98.875000	83.121262	9.792973	11.7	-5.4
8	APR	1981	2200	98.916664	83.124908	9.777697	11.3	-6.0
8	APR	1981	2231	98.938194	83.126862	9.766927	12.1	-6.6
8	APR	1981	2300	98.958336	83.128815	9.759851	12.8	-7.3
8	APR	1981	2329	98.978477	83.130882	9.749811	13.6	-8.0
9	APR	1981	0	99.000000	83.133232	9.738413	14.5	-8.1
9	APR	1981	17	99.011810	83.134590	9.732273	15.1	-7.8
9	APR	1981	47	99.032646	83.137100	9.722206	15.8	-7.0
9	APR	1981	100	99.041664	83.138214	9.718269	15.9	-6.5
9	APR	1981	117	99.053474	83.139679	9.713522	16.0	-5.9
9	APR	1981	200	99.083336	83.143433	9.703096	16.3	-5.0
9	APR	1981	300	99.125000	83.146941	9.689822	18.0	-4.9
9	APR	1981	305	99.128471	83.149429	9.688701	18.2	-5.0
9	APR	1981	400	99.166664	83.155144	9.676086	20.0	-5.0
9	APR	1981	453	99.203468	83.160912	9.664090	19.8	-5.0
9	APR	1981	500	99.208336	83.161652	9.662489	19.6	-5.1
9	APR	1981	600	99.250000	83.167595	9.646636	16.7	-7.2
9	APR	1981	641	99.278473	83.171082	9.630716	15.0	-9.9
9	APR	1981	700	99.291664	83.172615	9.621736	14.9	-10.9
9	APR	1981	724	99.308327	83.174568	9.609243	15.4	-11.4
9	APR	1981	800	99.333336	83.177711	9.589124	17.2	-12.5
9	APR	1981	900	99.375000	83.183754	9.555492	19.5	-12.0
9	APR	1981	912	99.383331	83.185020	9.549039	19.7	-11.7
9	APR	1981	1000	99.416664	83.190147	9.524437	19.6	-10.9
9	APR	1981	1100	99.458336	83.196297	9.495677	18.1	-10.3
9	APR	1981	1100	99.458336	83.196297	9.495677	18.1	-10.3
9	APR	1981	1200	99.500000	83.201782	9.467193	15.5	-10.6
9	APR	1981	1246	99.533333	83.205551	9.443389	13.7	-11.1
9	APR	1981	1300	99.541664	83.206429	9.437325	13.4	-11.1
9	APR	1981	1348	99.575005	83.209839	9.412710	13.1	-11.4
9	APR	1981	1400	99.583336	83.210686	9.406440	13.2	-11.5
9	APR	1981	1436	99.608337	83.213219	9.386756	12.6	-12.7

# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
9	APK	1981	1500	99.625000	83.214798	9.372218	11.8	-13.9
9	APK	1981	1534	99.648613	83.216934	9.349624	11.7	-15.1
9	APK	1981	1600	99.666664	83.218628	9.331331	12.4	-15.7
9	APK	1981	1658	99.706940	83.222794	9.286487	14.0	-16.6
9	APK	1981	1700	99.708336	83.222939	9.286966	14.0	-16.6
9	APR	1981	1720	99.722221	83.224480	9.271737	14.4	-16.7
9	APR	1981	1800	99.750000	83.227715	9.241647	15.6	-15.9
9	APR	1981	1844	99.780556	83.231590	9.211902	17.0	-13.4
9	APK	1981	1900	99.791664	83.233086	9.202519	17.5	-12.2
9	APK	1981	1906	99.795837	83.233658	9.199218	17.7	-11.8
9	APK	1981	1956	99.830559	83.238411	9.174304	16.7	-10.9
9	APK	1981	2000	99.833336	83.238770	9.172296	16.4	-11.0
9	APK	1981	2100	99.875000	83.243538	9.138241	13.2	-14.0
9	APR	1981	2142	99.904167	83.246368	9.109231	11.9	-16.0
9	APK	1981	2200	99.916664	83.247513	9.095817	11.6	-16.5
9	APK	1981	2240	99.944450	83.249969	9.064659	11.1	-17.3
9	APK	1981	2300	99.958336	83.251160	9.048718	11.0	-17.4
9	APK	1981	2328	99.977776	83.252831	9.026360	11.1	-17.3
10	APK	1981	0	100.000000	83.254761	9.001156	11.0	-16.9
10	APK	1981	28	100.019440	83.256393	8.979615	10.5	-16.6
10	APK	1981	100	100.041664	83.258133	8.955574	9.8	-16.1
10	APK	1981	114	100.051392	83.258865	8.945252	9.6	-15.9
10	APK	1981	200	100.083336	83.261169	8.912306	8.9	-15.2
10	APK	1981	216	100.094444	83.261932	8.901289	8.6	-14.8
10	APK	1981	300	100.125000	83.264000	8.873639	9.3	-12.0
10	APR	1981	301	100.125694	83.264053	8.873091	9.3	-11.9
10	APR	1981	400	100.166664	83.267242	8.845572	10.0	-9.5
10	APK	1981	404	100.169441	83.267456	8.843824	9.9	-9.3
10	APK	1981	500	100.208336	83.270134	8.816313	7.5	-12.5
10	APK	1981	551	100.243752	83.271866	8.782594	5.3	-15.7
10	APR	1981	600	100.250000	83.272125	8.776028	5.1	-16.0
10	APK	1981	634	100.273613	83.272995	8.750743	4.5	-15.9
10	APR	1981	700	100.291664	83.273613	8.732259	4.3	-14.8
10	APK	1981	800	100.333336	83.274818	8.695273	2.7	-12.0
10	APK	1981	822	100.348610	83.275085	8.683466	1.7	-11.2
10	APK	1981	900	100.375000	83.275261	8.664632	0.1	-10.4
10	APR	1981	1000	100.416664	83.275032	8.635657	-1.1	-10.9
10	APK	1981	1100	100.458336	83.274521	8.603620	-2.4	-12.3
10	APK	1981	1113	100.467354	83.274330	8.596175	-3.0	-12.6
10	APK	1981	1158	100.498604	83.273193	8.569448	-7.0	-13.0
10	APK	1981	1200	100.500000	83.273117	8.568243	-7.3	-13.0
10	APK	1981	1259	100.540977	83.269882	8.533278	-12.0	-12.6
10	APK	1981	1300	100.541664	83.269821	8.532700	-12.0	-12.6
10	APK	1981	1400	100.583336	83.265854	8.499350	-11.6	-11.5
10	APK	1981	1500	100.625000	83.262520	8.469359	-9.0	-10.2
10	APK	1981	1600	100.666664	83.259842	8.443262	-7.8	-8.8
10	APK	1981	1606	100.670837	83.259590	8.440851	-7.8	-8.7
10	APK	1981	1631	100.688194	83.258522	8.431175	-7.9	-8.2
10	APK	1981	1700	100.708336	83.257271	8.420664	-8.1	-7.6
10	APR	1981	1752	100.744446	83.254929	8.403941	-8.5	-6.4
10	APR	1981	1800	100.750000	83.254562	8.401611	-8.6	-6.3
10	APK	1981	1818	100.762505	83.253723	8.396579	-8.7	-5.9
10	APK	1981	1900	100.791664	83.251732	8.385437	-8.8	-5.8
10	APK	1981	1938	100.818054	83.249947	8.375010	-8.6	-5.2
10	APK	1981	2000	100.833336	83.248940	8.368551	-8.4	-6.6
10	APK	1981	2100	100.875000	83.246269	8.349407	-8.1	-7.2
10	APR	1981	2200	100.916664	83.243591	8.329452	-8.5	-7.1
10	APK	1981	2300	100.958336	83.240662	8.311199	-9.6	-5.1
10	APK	1981	2338	100.984718	83.238586	8.301310	-10.5	-5.3
11	APK	1981	0	101.000000	83.237305	8.296185	-11.0	-4.9
11	APK	1981	100	101.041664	83.233566	8.283444	-11.9	-4.6
11	APK	1981	126	101.059723	83.231880	8.277600	-12.1	-4.9
11	APK	1981	200	101.083336	83.229637	8.269984	-12.3	-5.2
11	APR	1981	246	101.115273	83.226524	8.258866	-12.6	-5.3
11	APK	1981	300	101.125000	83.225571	8.255486	-12.7	-5.3
11	APK	1981	314	101.134727	83.225209	8.252095	-12.7	-5.3
11	APK	1981	400	101.166664	83.221458	8.240890	-12.7	-5.4
11	APK	1981	500	101.208336	83.217308	8.225241	-13.1	-5.0

# FRAM 3      NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULI DAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
11	APR	1981	502	101.209724	83.217163	8.224686	-13.1	-6.1
11	APR	1981	600	101.250000	83.213013	8.208308	-13.1	-6.0
11	APR	1981	650	101.284721	83.209618	8.195676	-11.9	-4.9
11	APR	1981	700	101.291664	83.208984	8.193499	-11.6	-4.6
11	APR	1981	800	101.333336	83.205307	8.182511	-11.5	-3.7
11	APR	1981	811	101.340973	83.204613	8.180656	-11.8	-3.7
11	APR	1981	900	101.375000	83.201294	8.171932	-13.3	-4.3
11	APR	1981	1000	101.416664	83.196724	8.157617	-14.6	-6.4
11	APR	1981	1100	101.458336	83.192009	8.136511	-14.2	-9.0
11	APR	1981	1200	101.500000	83.187607	8.109214	-13.0	-10.6
11	APR	1981	1210	101.506950	83.186913	8.104368	-12.8	-10.7
11	APR	1981	1256	101.538887	83.183754	8.082103	-12.7	-10.4
11	APR	1981	1300	101.541664	83.183479	8.080221	-12.7	-10.3
11	APR	1981	1328	101.561104	83.181541	8.067439	-12.8	-9.8
11	APR	1981	1356	101.580559	83.179611	8.055323	-12.6	-9.2
11	APR	1981	1400	101.583336	83.179337	8.053661	-12.6	-9.1
11	APR	1981	1444	101.613892	83.176407	8.036917	-12.0	-7.5
11	APR	1981	1500	101.625000	83.175377	8.031711	-11.8	-6.8
11	APR	1981	1514	101.634727	83.174492	8.027514	-11.6	-6.4
11	APR	1981	1542	101.654167	83.172783	8.019732	-11.0	-6.0
11	APR	1981	1600	101.666664	83.171738	8.014760	-10.6	-6.2
11	APR	1981	1700	101.708336	83.168472	7.997197	-9.7	-6.7
11	APR	1981	1729	101.728477	83.166977	7.988407	-9.5	-6.6
11	APR	1981	1800	101.750000	83.165390	7.979337	-9.5	-6.2
11	APR	1981	1846	101.781944	83.162979	7.967171	-9.9	-5.5
11	APR	1981	1900	101.791664	83.162224	7.963710	-10.1	-5.4
11	APR	1981	1915	101.802086	83.161392	7.960066	-10.3	-5.3
11	APR	1981	2000	101.833336	83.158675	7.948630	-10.1	-6.2
11	APR	1981	2004	101.836113	83.156661	7.947501	-10.0	-6.3
11	APR	1981	2100	101.875000	83.155907	7.928886	-8.6	-8.4
11	APR	1981	2150	101.909721	83.153961	7.908834	-6.7	-9.0
11	APR	1981	2200	101.916664	83.153603	7.904800	-6.6	-8.8
11	APR	1981	2249	101.950691	83.151810	7.886545	-7.2	-7.4
11	APR	1981	2300	101.958336	83.151375	7.883002	-7.6	-6.9
11	APR	1981	2336	101.983337	83.149811	7.872580	-8.3	-6.2
12	APR	1981	0	102.000000	83.148727	7.865719	-8.5	-6.5
12	APR	1981	37	102.025696	83.147011	7.854378	-8.6	-7.1
12	APR	1981	100	102.041664	83.145943	7.846715	-8.6	-7.6
12	APR	1981	122	102.056946	83.144936	7.838821	-8.4	-8.2
12	APR	1981	153	102.078468	83.143524	7.826834	-8.4	-8.8
12	APR	1981	200	102.083336	83.143204	7.824044	-8.5	-8.8
12	APR	1981	225	102.100700	83.142052	7.813988	-8.7	-8.9
12	APR	1981	300	102.125000	83.140358	7.800068	-9.2	-8.6
12	APR	1981	341	102.153473	83.138260	7.784562	-9.8	-8.1
12	APR	1981	400	102.166664	83.137245	7.777653	-10.0	-8.0
12	APR	1981	413	102.175690	83.136536	7.772991	-10.1	-7.9
12	APR	1981	500	102.208336	83.133919	7.755951	-10.4	-8.3
12	APR	1981	528	102.227776	83.132332	7.745025	-10.6	-9.0
12	APR	1981	600	102.250000	83.130493	7.731656	-10.6	-9.5
12	APR	1981	601	102.250694	83.130440	7.731231	-10.6	-9.5
12	APR	1981	643	102.279854	83.128075	7.713129	-10.2	-9.5
12	APR	1981	700	102.291664	83.127144	7.705959	-10.0	-9.3
12	APR	1981	716	102.302773	83.126282	7.699331	-9.8	-9.1
12	APR	1981	800	102.333336	83.123985	7.681870	-9.5	-8.3
12	APR	1981	830	102.354164	83.122452	7.671478	-9.4	-7.0
12	APR	1981	900	102.375000	83.120916	7.663222	-9.5	-5.2
12	APR	1981	1000	102.416664	83.117706	7.653420	-10.6	-2.5
12	APR	1981	1018	102.429169	83.116638	7.651545	-11.2	-2.2
12	APR	1981	1100	102.458336	83.113983	7.647130	-12.0	-3.0
12	APR	1981	1122	102.473610	83.112556	7.643644	-12.0	-4.1
12	APR	1981	1200	102.500000	83.110054	7.635494	-12.4	-5.1
12	APR	1981	1206	102.504173	83.109650	7.634111	-12.5	-5.1
12	APR	1981	1236	102.525002	83.107582	7.627194	-13.0	-5.1
12	APR	1981	1300	102.541664	83.105673	7.621638	-13.3	-5.1
12	APR	1981	1308	102.547218	83.105293	7.619796	-13.4	-5.1
12	APR	1981	1354	102.579163	83.101921	7.609840	-13.7	-4.3
12	APR	1981	1400	102.583336	83.101471	7.608762	-13.7	-4.1
12	APR	1981	1422	102.598610	83.099838	7.604658	-13.8	-3.7

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
12	APR	1981	1454	102.620827	83.097473	7.599277	-13.5	-4.3
12	APR	1981	1500	102.625000	83.097038	7.598096	-13.4	-4.5
12	APR	1981	1600	102.666664	83.092941	7.583052	-11.6	-6.6
12	APR	1981	1608	102.672218	83.092445	7.580653	-11.3	-6.8
12	APR	1981	1640	102.694450	83.090607	7.570599	-10.1	-7.0
12	APR	1981	1700	102.708336	83.089546	7.564528	-9.5	-6.5
12	APR	1981	1754	102.745827	83.086998	7.550472	-8.1	-5.1
12	APR	1981	1800	102.750000	83.086731	7.549120	-8.0	-4.9
12	APR	1981	1826	102.768059	83.085632	7.543663	-7.6	-4.5
12	APR	1981	1900	102.791664	83.084267	7.536909	-7.2	-4.5
12	APR	1981	1915	102.802086	83.083667	7.533809	-7.1	-4.7
12	APR	1981	1940	102.819450	83.082748	7.528308	-6.8	-5.1
12	APR	1981	2000	102.833336	83.082024	7.523583	-6.6	-5.4
12	APR	1981	2100	102.875000	83.080048	7.508187	-5.4	-5.8
12	APR	1981	2200	102.916664	83.078545	7.492797	-3.8	-5.5
12	APR	1981	2247	102.949310	83.077675	7.481219	-3.2	-5.6
12	APR	1981	2300	102.958336	83.077446	7.477914	-3.3	-5.8
12	APR	1981	2346	102.990273	83.076509	7.465000	-3.9	-7.0
13	APR	1981	0	103.000000	83.076263	7.460456	-4.2	-7.5
13	APR	1981	33	103.022919	83.075485	7.446609	-4.3	-8.4
13	APR	1981	100	103.041664	83.074883	7.438334	-3.9	-8.5
13	APR	1981	100	103.041664	83.074883	7.438334	-3.9	-8.5
13	APR	1981	132	103.063896	83.074257	7.426301	-3.3	-8.2
13	APR	1981	200	103.083336	83.073792	7.416232	-2.8	-7.9
13	APR	1981	219	103.096527	83.073517	7.409663	-2.5	-7.6
13	APR	1981	248	103.116669	83.073158	7.400055	-2.3	-7.2
13	APR	1981	300	103.125000	83.073006	7.396249	-2.3	-7.0
13	APR	1981	319	103.138191	83.072769	7.390426	-2.5	-6.7
13	APR	1981	400	103.166664	83.072159	7.378592	-3.1	-6.2
13	APR	1981	436	103.191673	83.071518	7.368841	-3.5	-5.9
13	APR	1981	500	103.208336	83.071053	7.362692	-3.6	-5.6
13	APR	1981	505	103.211890	83.070953	7.361454	-3.6	-5.5
13	APR	1981	553	103.245140	83.070007	7.350519	-3.6	-4.6
13	APR	1981	600	103.250000	83.069870	7.349095	-3.6	-4.5
13	APR	1981	623	103.265968	83.069435	7.344696	-3.5	-4.1
13	APR	1981	700	103.291664	83.068764	7.338024	-3.3	-4.0
13	APR	1981	740	103.319450	83.068092	7.330844	-2.8	-4.0
13	APR	1981	800	103.333336	83.067810	7.327315	-2.4	-3.9
13	APR	1981	811	103.340973	83.067680	7.325402	-2.1	-3.9
13	APR	1981	900	103.375000	83.067215	7.317426	-1.6	-3.3
13	APR	1981	928	103.394440	83.066963	7.313637	-1.8	-2.8
13	APR	1981	1000	103.416664	83.066605	7.310030	-2.3	-2.3
13	APR	1981	1022	103.431946	83.066315	7.307768	-2.6	-2.3
13	APR	1981	1100	103.458336	83.065735	7.303718	-3.0	-2.6
13	APR	1981	1116	103.469444	83.065475	7.301781	-3.0	-2.8
13	APR	1981	1144	103.488892	83.065025	7.297913	-3.0	-3.4
13	APR	1981	1200	103.500000	83.064766	7.295403	-2.9	-3.7
13	APR	1981	1300	103.541664	83.063782	7.284409	-3.4	-4.4
13	APR	1981	1304	103.544441	83.063705	7.283630	-3.5	-4.4
13	APR	1981	1330	103.562500	83.063179	7.278537	-3.9	-4.4
13	APR	1981	1400	103.583336	83.062506	7.272818	-4.3	-4.1
13	APR	1981	1452	103.619446	83.061241	7.263787	-4.5	-3.7
13	APR	1981	1500	103.625000	83.061050	7.262495	-4.5	-3.6
13	APR	1981	1516	103.636108	83.060661	7.259974	-4.5	-3.5
13	APR	1981	1552	103.661110	83.059807	7.254456	-4.3	-3.4
13	APR	1981	1600	103.666664	83.059624	7.253217	-4.2	-3.5
13	APR	1981	1700	103.708336	83.058289	7.243803	-4.0	-3.4
13	APR	1981	1702	103.709724	83.058250	7.243495	-4.0	-3.4
13	APR	1981	1738	103.734718	83.057449	7.238080	-4.3	-3.4
13	APR	1981	1800	103.750000	83.056923	7.234771	-4.5	-3.4
13	APR	1981	1848	103.783333	83.055695	7.227361	-4.9	-3.5
13	APR	1981	1900	103.791664	83.055374	7.225464	-4.9	-3.6
13	APR	1981	2000	103.833336	83.053825	7.215457	-4.4	-4.0
13	APR	1981	2012	103.841667	83.053551	7.213281	-4.2	-4.1
13	APR	1981	2034	103.856941	83.053076	7.209099	-3.8	-4.4
13	APR	1981	2100	103.875000	83.052574	7.203884	-3.4	-4.6
13	APR	1981	2158	103.915276	83.051643	7.192604	-2.5	-3.8
13	APR	1981	2200	103.916664	83.051613	7.192265	-2.4	-3.8

# FRA 4 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
13	APR	1981	2258	103.956940	83.050919	7.184263	-2.3	-2.6
13	APR	1981	2300	103.958336	83.050888	7.184027	-2.3	-2.6
13	APR	1981	2344	103.988892	83.050270	7.179490	-2.9	-1.9
14	APR	1981	0	104.000000	83.050011	7.178291	-3.0	-1.5
14	APR	1981	8	104.005554	83.049881	7.177787	-3.1	-1.3
14	APR	1981	40	104.031944	83.049202	7.175785	-3.5	-1.3
14	APR	1981	100	104.041664	83.048935	7.174915	-3.6	-1.5
14	APR	1981	130	104.062500	83.048332	7.172489	-3.9	-2.1
14	APR	1981	155	104.079865	83.047783	7.169891	-4.2	-2.5
14	APR	1981	200	104.083336	83.047668	7.169316	-4.3	-2.6
14	APR	1981	234	104.106941	83.046852	7.164995	-4.6	-3.0
14	APR	1981	300	104.125000	83.046196	7.161351	-4.8	-3.2
14	APR	1981	400	104.166664	83.044624	7.152626	-4.8	-3.2
14	APR	1981	422	104.181946	83.044060	7.149554	-4.7	-3.1
14	APR	1981	500	104.208336	83.043121	7.144247	-4.3	-3.3
14	APR	1981	531	104.229858	83.042450	7.139383	-3.6	-3.8
14	APR	1981	600	104.250000	83.041931	7.134272	-3.0	-4.1
14	APR	1981	610	104.256950	83.041779	7.132446	-2.8	-4.1
14	APR	1981	651	104.285423	83.041199	7.125367	-2.8	-3.4
14	APR	1981	700	104.291664	83.041054	7.124083	-3.0	-3.0
14	APR	1981	800	104.333336	83.039871	7.118738	-4.4	-1.1
14	APR	1981	838	104.359718	83.038672	7.117510	-5.2	-0.5
14	APR	1981	900	104.375000	83.038231	7.116997	-5.5	-0.6
14	APR	1981	1000	104.416664	83.036354	7.114064	-6.0	-2.0
14	APR	1981	1026	104.434723	83.035507	7.111164	-6.1	-3.0
14	APR	1981	1100	104.458336	83.034393	7.105943	-6.1	-3.8
14	APR	1981	1131	104.479858	83.033371	7.100709	-6.1	-3.7
14	APR	1981	1200	104.500000	83.032417	7.096067	-6.1	-3.5
14	APR	1981	1214	104.509727	83.031952	7.093951	-6.1	-3.3
14	APR	1981	1238	104.526390	83.031151	7.090439	-6.2	-3.3
14	APR	1981	1300	104.541664	83.030411	7.087207	-6.3	-3.4
14	APR	1981	1317	104.553474	83.029631	7.084622	-6.4	-3.5
14	APR	1981	1400	104.583336	83.028305	7.077590	-6.8	-3.9
14	APR	1981	1402	104.584724	83.028229	7.077243	-6.8	-3.9
14	APR	1981	1424	104.599998	83.027412	7.073342	-7.0	-4.1
14	APR	1981	1500	104.625000	83.026039	7.066662	-7.1	-4.3
14	APR	1981	1503	104.627083	83.025925	7.066094	-7.1	-4.3
14	APR	1981	1600	104.666664	83.023750	7.055387	-6.8	-4.1
14	APR	1981	1610	104.673615	83.023392	7.053593	-6.6	-4.0
14	APR	1981	1649	104.700691	83.022003	7.046961	-6.7	-3.7
14	APR	1981	1700	104.708336	83.021606	7.045184	-6.9	-3.6
14	APR	1981	1756	104.747223	83.019196	7.037421	-9.5	-2.4
14	APR	1981	1800	104.750000	83.018982	7.037004	-9.8	-2.3
14	APR	1981	1836	104.775002	83.016876	7.033921	-11.5	-1.8
14	APR	1981	1900	104.791664	83.015381	7.031815	-11.5	-2.2
14	APR	1981	1923	104.807640	83.014000	7.029294	-10.6	-2.8
14	APR	1981	2000	104.833336	83.012123	7.023792	-8.0	-3.9
14	APR	1981	2100	104.875000	83.011010	7.011560	-5.4	-4.9
14	APR	1981	2109	104.881248	83.009842	7.009600	-5.4	-4.9
14	APR	1981	2129	104.895142	83.009239	7.005275	-5.7	-4.8
14	APR	1981	2200	104.916664	83.008224	6.998984	-6.6	-4.2
14	APR	1981	2209	104.922913	83.007896	6.997354	-6.9	-3.9
14	APR	1981	2255	104.954865	83.006081	6.991061	-7.3	-2.1
14	APR	1981	2300	104.958336	83.005590	6.990624	-7.2	-1.8
14	APR	1981	2357	104.997917	83.003792	6.986156	-6.4	-0.6
15	APR	1981	0	105.000000	83.003685	6.986071	-6.4	-0.6
15	APR	1981	41	105.028473	83.002304	6.986499	-6.1	-1.2
15	APR	1981	100	105.041664	83.001686	6.985340	-6.0	-1.6
15	APR	1981	145	105.072914	83.000244	6.981253	-6.0	-2.5
15	APR	1981	200	105.083336	82.999756	6.979463	-6.0	-2.8
15	APR	1981	248	105.116669	82.998154	6.972780	-6.3	-3.4
15	APR	1981	300	105.125000	82.997742	6.970982	-6.4	-3.4
15	APR	1981	333	105.147919	82.996567	6.966014	-6.7	-3.4
15	APR	1981	400	105.166664	82.995560	6.962075	-7.0	-3.2
15	APR	1981	500	105.208336	82.993202	6.953640	-7.5	-3.2
15	APR	1981	521	105.222423	82.992348	6.950634	-7.5	-3.3
15	APR	1981	600	105.250000	82.990776	6.945199	-7.3	-2.9
15	APR	1981	700	105.291664	82.988525	6.939953	-6.5	-0.7

# FRA4 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GAT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
15	APR	1981	708	105.297218	82.988251	6.939785	-6.3	-0.3
15	APR	1981	748	105.325005	82.988923	6.940933	-6.1	1.4
15	APR	1981	800	105.333336	82.988526	6.941751	-6.1	1.7
15	APR	1981	900	105.375000	82.984512	6.947246	-6.2	2.1
15	APR	1981	936	105.400002	82.983322	6.950130	-6.0	1.6
15	APR	1981	1000	105.416664	82.982552	6.951608	-5.8	1.2
15	APR	1981	1042	105.445831	82.981300	6.953629	-5.3	1.0
15	APR	1981	1100	105.458336	82.980789	6.954475	-5.1	1.1
15	APR	1981	1124	105.474998	82.980141	6.955702	-4.9	1.2
15	APR	1981	1146	105.490273	82.979568	6.956949	-4.7	1.3
15	APR	1981	1200	105.500000	82.979218	6.957795	-4.5	1.4
15	APR	1981	1300	105.541664	82.977859	6.961452	-3.8	1.3
15	APR	1981	1400	105.583336	82.976685	6.964261	-3.5	0.9
15	APR	1981	1414	105.593056	82.976410	6.964797	-3.6	0.8
15	APR	1981	1500	105.625000	82.975494	6.966562	-3.9	1.0
15	APR	1981	1600	105.666664	82.974106	6.970332	-4.8	2.0
15	APR	1981	1600	105.666664	82.974106	6.970332	-4.8	2.0
15	APR	1981	1700	105.708336	82.972389	6.976567	-5.7	2.5
15	APR	1981	1747	105.740974	82.970894	6.981216	-6.0	1.8
15	APR	1981	1800	105.750000	82.970474	6.982189	-6.0	1.5
15	APR	1981	1900	105.791664	82.968582	6.984460	-5.6	0.2
15	APR	1981	2000	105.833336	82.968911	6.983807	-4.7	-0.5
15	APR	1981	2100	105.875000	82.965591	6.982787	-3.4	-0.1
15	APR	1981	2200	105.916664	82.964676	6.983616	-2.3	0.7
15	APR	1981	2206	105.920837	82.964607	6.983807	-2.2	0.8
15	APR	1981	2300	105.958336	82.964096	6.985787	-1.4	0.7
15	APR	1981	2308	105.963840	82.964035	6.986009	-1.3	0.6
15	APR	1981	0	106.000000	82.963722	6.986535	-1.0	-0.1
15	APR	1981	56	106.038887	82.963440	6.985703	-0.9	-0.5
15	APR	1981	100	106.041664	82.963425	6.985618	-0.9	-0.5
15	APR	1981	200	106.083336	82.963142	6.983796	-0.8	-1.0
15	APR	1981	244	106.113892	82.962967	6.981019	-0.6	-1.9
15	APR	1981	300	106.125000	82.962914	6.979563	-0.6	-2.3
15	APR	1981	345	106.156250	82.962784	6.974310	-0.5	-2.9
15	APR	1981	400	106.166664	82.962746	6.972340	-0.5	-3.0
15	APR	1981	432	106.188896	82.962662	6.968094	-0.5	-2.9
15	APR	1981	500	106.208336	82.962585	6.964700	-0.6	-2.6
15	APR	1981	533	106.231255	82.962448	6.961298	-1.0	-2.1
15	APR	1981	600	106.250000	82.962273	6.958930	-1.4	-1.9
15	APR	1981	619	106.263191	82.962112	6.957422	-1.7	-1.7
15	APR	1981	700	106.291664	82.961670	6.954509	-2.2	-1.5
15	APR	1981	720	106.305550	82.961418	6.953245	-2.4	-1.4
15	APR	1981	800	106.333336	82.960899	6.951012	-2.4	-1.2
15	APR	1981	900	106.375000	82.960205	6.948004	-1.8	-1.2
15	APR	1981	1000	106.416664	82.959740	6.944186	-1.0	-1.8
15	APR	1981	1100	106.458336	82.959473	6.938683	-0.7	-2.3
15	APR	1981	1140	106.486115	82.959305	6.934462	-1.0	-2.4
15	APR	1981	1200	106.500000	82.959183	6.932429	-1.2	-2.2
15	APR	1981	1213	106.509026	82.959091	6.931187	-1.4	-2.1
15	APR	1981	1240	106.527779	82.958847	6.928622	-1.9	-1.9
15	APR	1981	1300	106.541664	82.958618	6.927204	-2.3	-1.8
15	APR	1981	1326	106.559723	82.958280	6.925152	-2.9	-1.8
15	APR	1981	1400	106.583336	82.957657	6.922447	-3.6	-1.8
15	APR	1981	1426	106.601387	82.957108	6.920467	-4.1	-1.7
15	APR	1981	1500	106.625000	82.956291	6.918097	-4.7	-1.5
15	APR	1981	1512	106.633331	82.955986	6.917285	-4.8	-1.5
15	APR	1981	1600	106.666664	82.954881	6.913836	-5.2	-1.8
15	APR	1981	1612	106.674995	82.954338	6.912842	-5.3	-2.0
15	APR	1981	1658	106.706940	82.952957	6.908434	-5.9	-2.4
15	APR	1981	1700	106.708336	82.952888	6.908224	-6.0	-2.4
15	APR	1981	1727	106.727081	82.951981	6.905353	-6.5	-2.4
15	APR	1981	1758	106.748604	82.950831	6.902168	-7.0	-2.2
15	APR	1981	1800	106.750000	82.950775	6.901975	-7.0	-2.2
15	APR	1981	1844	106.780556	82.949059	6.897861	-7.4	-2.3
15	APR	1981	1900	106.791664	82.948418	6.896184	-7.5	-2.5
15	APR	1981	1944	106.822227	82.946655	6.890401	-7.3	-3.5
15	APR	1981	2000	106.833336	82.946030	6.887765	-7.1	-4.0
15	APR	1981	2100	106.875000	82.943863	6.876026	-6.2	-4.6

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
16	APR	1981	2200	106.916664	82.942001	6.865059	-5.3	-3.4
16	APR	1981	2218	106.929189	82.941490	6.862607	-5.1	-2.8
16	APR	1981	2300	106.958336	82.940376	6.858679	-4.6	-1.6
17	APR	1981	0	107.000000	82.939003	6.855692	-3.9	-1.0
17	APR	1981	0	107.004173	82.938873	6.855422	-3.8	-1.0
17	APR	1981	30	107.020836	82.938400	6.854256	-3.5	-1.2
17	APR	1981	100	107.041664	82.937859	6.852649	-3.2	-1.3
17	APR	1981	105	107.045135	82.937775	6.852375	-3.2	-1.3
17	APR	1981	154	107.079163	82.936958	6.849677	-3.0	-1.3
17	APR	1981	200	107.083336	82.936859	6.849347	-3.0	-1.2
17	APR	1981	217	107.095146	82.936584	6.848414	-3.0	-1.3
17	APR	1981	252	107.119446	82.936020	6.846415	-3.1	-1.4
17	APR	1981	300	107.125000	82.935883	6.845922	-3.1	-1.4
17	APR	1981	342	107.154167	82.935150	6.842925	-3.3	-1.9
17	APR	1981	400	107.166664	82.934822	6.841330	-3.4	-2.2
17	APR	1981	404	107.169441	82.934746	6.840945	-3.4	-2.2
17	APR	1981	440	107.194450	82.934059	6.836964	-3.7	-2.8
17	APR	1981	500	107.208336	82.933647	6.834352	-3.9	-3.1
17	APR	1981	530	107.229164	82.932999	6.830006	-4.2	-3.4
17	APR	1981	600	107.250000	82.932289	6.825537	-4.5	-3.3
17	APR	1981	609	107.256248	82.932060	6.824269	-4.7	-3.2
17	APR	1981	700	107.291664	82.930717	6.818428	-4.8	-1.9
17	APR	1981	718	107.304169	82.930260	6.817134	-4.6	-1.4
17	APR	1981	757	107.331245	82.929306	6.815648	-4.5	-0.5
17	APR	1981	800	107.333336	82.929237	6.815586	-4.5	-0.5
17	APR	1981	900	107.375000	82.927673	6.815280	-5.3	0.2
17	APR	1981	944	107.405556	82.926300	6.815757	-6.2	0.3
17	APR	1981	1000	107.416664	82.925751	6.815961	-6.5	0.3
17	APR	1981	1051	107.452087	82.923697	6.816148	-6.8	-0.2
17	APR	1981	1100	107.458336	82.923561	6.816025	-6.8	-0.4
17	APR	1981	1132	107.480560	82.922386	6.815232	-6.8	-0.6
17	APR	1981	1200	107.500000	82.921356	6.814471	-6.8	-0.6
17	APR	1981	1236	107.526390	82.919968	6.813683	-6.7	-0.4
17	APR	1981	1300	107.541664	82.919174	6.813384	-6.6	-0.2
17	APR	1981	1320	107.555550	82.918472	6.813242	-6.5	-0.1
17	APR	1981	1400	107.583336	82.917068	6.813170	-6.5	-0.1
17	APR	1981	1424	107.599998	82.916229	6.812906	-6.4	-0.4
17	APR	1981	1500	107.625000	82.914978	6.811725	-6.5	-1.1
17	APR	1981	1600	107.666664	82.912819	6.807779	-7.0	-1.6
17	APR	1981	1610	107.673615	82.912437	6.807067	-7.1	-1.6
17	APR	1981	1700	107.708336	82.910370	6.804190	-8.3	-0.8
17	APR	1981	1756	107.747223	82.907555	6.803715	-10.3	0.4
17	APR	1981	1800	107.750000	82.907326	6.803783	-10.5	0.4
17	APR	1981	1900	107.791664	82.903717	6.804172	-11.3	-0.9
17	APR	1981	2000	107.833336	82.900223	6.796719	-9.9	-5.0
17	APR	1981	2028	107.852776	82.898811	6.789516	-8.8	-6.7
17	APR	1981	2100	107.875000	82.897377	6.779549	-7.9	-7.2
17	APR	1981	2102	107.876396	82.897293	6.778921	-7.9	-7.2
17	APR	1981	2127	107.893745	82.896248	6.771601	-7.6	-6.1
17	APR	1981	2200	107.916664	82.894905	6.764786	-7.5	-3.2
17	APR	1981	2300	107.958336	82.892479	6.763058	-7.4	1.2
17	APR	1981	2317	107.970146	82.891800	6.764172	-7.3	1.8
18	APR	1981	0	108.000000	82.890137	6.767943	-6.9	1.9
18	APR	1981	0	108.000000	82.890137	6.767943	-6.9	1.9
18	APR	1981	100	108.041664	82.888016	6.771318	-6.0	0.9
18	APR	1981	105	108.045135	82.887856	6.771505	-6.0	0.8
18	APR	1981	146	108.073608	82.886581	6.772557	-5.7	0.3
18	APR	1981	200	108.083336	82.886139	6.772632	-5.8	0.0
18	APR	1981	253	108.120140	82.884399	6.771638	-6.4	-0.7
18	APR	1981	300	108.125000	82.884155	6.771413	-6.5	-0.8
18	APR	1981	400	108.166664	82.881927	6.769217	-7.1	-0.8
18	APR	1981	500	108.208336	82.879616	6.767218	-7.1	-0.7
18	APR	1981	600	108.250000	82.877312	6.765286	-7.3	-0.8
18	APR	1981	628	108.269440	82.876175	6.764312	-7.6	-0.8
18	APR	1981	700	108.291664	82.874733	6.763176	-8.9	-0.8
18	APR	1981	707	108.296532	82.874397	6.762941	-9.2	-0.8
18	APR	1981	800	108.333336	82.871445	6.761915	-11.4	0.1
18	APR	1981	855	108.371529	82.867813	6.763626	-12.7	1.2



# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VFL.	E-VFL.
18	APR	1981	900	108.375000	82.867470	6.763851	-12.8	1.3
18	APR	1981	958	108.415276	82.863449	6.766346	-12.7	0.1
18	APR	1981	1000	108.416564	82.863312	6.766349	-12.7	0.0
18	APR	1981	1043	108.446526	82.860413	6.764989	-12.3	-1.1
18	APR	1981	1100	108.458336	82.859276	6.764237	-12.2	-1.0
18	APR	1981	1200	108.500000	82.855461	6.763604	-11.1	0.2
18	APR	1981	1230	108.520836	82.853737	6.763629	-10.1	0.7
18	APR	1981	1300	108.541664	82.852173	6.764400	-9.2	0.3
18	APR	1981	1327	108.560417	82.850883	6.764254	-8.5	-0.7
18	APR	1981	1400	108.583336	82.849434	6.762322	-7.7	-2.0
18	APR	1981	1418	108.595833	82.848701	6.760593	-7.3	-2.5
18	APR	1981	1500	108.625000	82.847160	6.755679	-6.3	-2.7
18	APR	1981	1600	108.666664	82.845284	6.750112	-5.3	-1.3
18	APR	1981	1700	108.708336	82.843613	6.748927	-5.2	0.3
18	APR	1981	1800	108.750000	82.841858	6.750521	-5.6	0.6
18	APR	1981	1900	108.791664	82.839859	6.750790	-6.5	-0.7
18	APR	1981	1939	108.818748	82.838455	6.748480	-6.7	-2.1
18	APR	1981	2000	108.833336	82.837692	6.746256	-6.7	-2.8
18	APR	1981	2100	108.875000	82.835648	6.737139	-5.6	-3.8
18	APR	1981	2125	108.892365	82.834938	6.733120	-4.9	-3.6
18	APR	1981	2200	108.916664	82.834091	6.728329	-4.2	-2.6
18	APR	1981	2214	108.926392	82.833778	6.726932	-4.0	-2.0
18	APR	1981	2300	108.958336	82.832825	6.724933	-3.7	0.0
19	APR	1981	0	109.000000	82.831657	6.727038	-3.4	1.2
19	APR	1981	0	109.000000	82.831657	6.727038	-3.4	1.2
19	APR	1981	57	109.039581	82.830658	6.729276	-3.2	0.5
19	APR	1981	100	109.041664	82.830605	6.729336	-3.2	0.4
19	APR	1981	140	109.073608	82.829849	6.729563	-2.8	-0.1
19	APR	1981	200	109.083336	82.829643	6.729523	-2.6	-0.1
19	APR	1981	300	109.125000	82.828941	6.729205	-1.9	-0.2
19	APR	1981	333	109.147919	82.828606	6.728690	-1.8	-0.5
19	APR	1981	400	109.166664	82.828339	6.727834	-1.9	-1.0
19	APR	1981	500	109.208336	82.827698	6.723839	-2.1	-2.2
19	APR	1981	539	109.235413	82.827194	6.719786	-2.8	-2.5
19	APR	1981	600	109.250000	82.826843	6.717603	-3.4	-2.3
19	APR	1981	617	109.261810	82.826508	6.716058	-4.0	-1.9
19	APR	1981	700	109.291664	82.825356	6.713720	-6.0	-0.5
19	APR	1981	800	109.333336	82.823006	6.714647	-8.3	0.9
19	APR	1981	805	109.336800	82.822777	6.714831	-8.5	0.9
19	APR	1981	900	109.375000	82.820053	6.716612	-9.7	0.4
19	APR	1981	953	109.411804	82.817192	6.716391	-10.1	-0.6
19	APR	1981	1000	109.416664	82.816811	6.716173	-10.1	-0.8
19	APR	1981	1100	109.458336	82.813690	6.712998	-8.8	-1.5
19	APR	1981	1100	109.458336	82.813690	6.712998	-8.8	-1.5
19	APR	1981	1141	109.486809	82.811874	6.710590	-7.7	-1.2
19	APR	1981	1200	109.500000	82.811096	6.709742	-7.5	-0.9
19	APR	1981	1220	109.513885	82.811030	6.709104	-7.2	-0.6
19	APR	1981	1246	109.531944	82.809319	6.708678	-6.8	-0.2
19	APR	1981	1300	109.541664	82.808815	6.708645	-6.4	0.1
19	APR	1981	1328	109.561104	82.807899	6.709002	-5.6	0.5
19	APR	1981	1400	109.583336	82.807007	6.710048	-4.7	1.0
19	APR	1981	1432	109.605560	82.806259	6.711564	-4.0	1.2
19	APR	1981	1500	109.625000	82.805679	6.713081	-3.6	1.3
19	APR	1981	1549	109.659027	82.804794	6.715904	-3.2	1.3
19	APR	1981	1600	109.666664	82.804611	6.716533	-3.1	1.3
19	APR	1981	1616	109.679169	82.804306	6.717535	-3.1	1.3
19	APR	1981	1700	109.708336	82.803604	6.719669	-3.2	1.1
19	APR	1981	1800	109.750000	82.802490	6.722520	-3.8	1.2
19	APR	1981	1805	109.753471	82.802391	6.722788	-3.9	1.3
19	APR	1981	1900	109.791664	82.801094	6.726173	-4.8	1.5
19	APR	1981	2000	109.833336	82.799365	6.730124	-5.0	1.5
19	APR	1981	2036	109.858337	82.798264	6.732434	-5.8	1.6
19	APR	1981	2100	109.875000	82.797516	6.734138	-5.7	1.8
19	APR	1981	2105	109.878471	82.797363	6.734526	-5.7	1.8
19	APR	1981	2138	109.901390	82.796349	6.737229	-5.6	1.8
19	APR	1981	2200	109.916664	82.795692	6.738760	-5.5	1.3
19	APR	1981	2222	109.931946	82.795044	6.739581	-5.5	0.4
19	APR	1981	2251	109.952087	82.794189	6.739056	-5.5	-1.2

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
19	APR	1981	2300	109.958336	82.793922	6.738492	-5.5	-1.7
19	APR	1981	2326	109.976387	82.793159	6.735846	-5.3	-3.0
20	APR	1981	0	110.000000	82.792229	6.730435	-4.8	-4.4
20	APR	1981	7	110.004860	82.792046	6.729086	-4.6	-4.6
20	APR	1981	38	110.026390	82.791344	6.722399	-3.9	-5.3
20	APR	1981	100	110.041664	82.790909	6.717313	-3.4	-5.4
20	APR	1981	114	110.051392	82.790657	6.714072	-3.1	-5.4
20	APR	1981	154	110.079163	82.790085	6.705008	-2.1	-5.2
20	APR	1981	200	110.083336	82.790024	6.703670	-1.9	-5.2
20	APR	1981	300	110.125000	82.789612	6.691257	-1.0	-4.2
20	APR	1981	302	110.126396	82.789604	6.690898	-1.0	-4.1
20	APR	1981	400	110.166664	82.789116	6.682557	-2.7	-2.6
20	APR	1981	410	110.173615	82.788956	6.681490	-3.2	-2.4
20	APR	1981	450	110.201385	82.788002	6.677991	-5.2	-1.8
20	APR	1981	500	110.208336	82.787682	6.677206	-6.2	-1.8
20	APR	1981	600	110.250000	82.785141	6.672761	-9.4	-1.6
20	APR	1981	638	110.276390	82.783028	6.670376	-11.1	-1.3
20	APR	1981	700	110.291664	82.781647	6.669177	-12.1	-1.2
20	APR	1981	715	110.302086	82.780632	6.668435	-12.8	-1.1
20	APR	1981	800	110.333336	82.777199	6.666965	-15.6	-0.2
20	APR	1981	900	110.375000	82.771385	6.668964	-20.2	1.8
20	APR	1981	903	110.377083	82.771057	6.669196	-20.5	1.9
20	APR	1981	1000	110.416664	82.764366	6.673282	-21.9	0.4
20	APR	1981	1012	110.424995	82.762955	6.673221	-21.6	-0.6
20	APR	1981	1051	110.452087	82.758499	6.670170	-20.9	-2.6
20	APR	1981	1100	110.458336	82.757477	6.669127	-20.9	-2.8
20	APR	1981	1112	110.466667	82.756126	6.667642	-20.9	-3.0
20	APR	1981	1158	110.498604	82.750923	6.660954	-20.9	-3.8
20	APR	1981	1200	110.500000	82.750694	6.660623	-20.9	-3.9
20	APR	1981	1239	110.527077	82.746315	6.653732	-20.6	-4.2
20	APR	1981	1300	110.541664	82.743988	6.649928	-20.4	-4.2
20	APR	1981	1344	110.572227	82.739212	6.641833	-19.6	-4.4
20	APR	1981	1400	110.583336	82.737534	6.638817	-19.2	-4.4
20	APR	1981	1426	110.601387	82.734879	6.634134	-18.5	-3.9
20	APR	1981	1500	110.625000	82.731552	6.629268	-17.7	-2.9
20	APR	1981	1530	110.645836	82.728729	6.626116	-17.1	-2.2
20	APR	1981	1600	110.666664	82.725983	6.623490	-16.7	-1.9
20	APR	1981	1700	110.708336	82.720573	6.619612	-16.9	-1.0
20	APR	1981	1716	110.719444	82.719101	6.619071	-17.3	-0.6
20	APR	1981	1800	110.750000	82.714767	6.617486	-19.6	-1.7
20	APR	1981	1900	110.791664	82.707642	6.606027	-24.3	-8.1
20	APR	1981	1902	110.793060	82.707382	6.605320	-24.4	-8.4
20	APR	1981	1946	110.823608	82.701385	6.584939	-25.1	-12.6
20	APR	1981	2000	110.833336	82.699509	6.577314	-24.4	-13.0
20	APR	1981	2100	110.875000	82.692070	6.545481	-21.5	-10.6
20	APR	1981	2200	110.916664	82.685234	6.526605	-21.6	-4.3
20	APR	1981	2237	110.942360	82.680748	6.522211	-23.3	-1.6
20	APR	1981	2300	110.958336	82.677788	6.521071	-24.2	-0.9
20	APR	1981	2318	110.970833	82.675400	6.520508	-24.7	-0.7
21	APR	1981	0	111.000000	82.669731	6.519324	-25.1	-0.7
21	APR	1981	25	111.017365	82.666344	6.518525	-25.0	-0.8
21	APR	1981	100	111.041664	82.661621	6.517540	-24.8	-0.5
21	APR	1981	200	111.083336	82.653725	6.516239	-23.8	-0.7
21	APR	1981	213	111.092354	82.652077	6.515806	-23.2	-0.9
21	APR	1981	300	111.125000	82.646385	6.513320	-21.6	-1.7
21	APR	1981	400	111.166664	82.639694	6.508161	-19.6	-2.3
21	APR	1981	401	111.167358	82.639587	6.508066	-19.6	-2.3
21	APR	1981	500	111.208336	82.633705	6.502948	-17.1	-1.6
21	APR	1981	548	111.241665	82.629555	6.501169	-14.9	-0.1
21	APR	1981	600	111.250000	82.626609	6.501259	-14.4	0.4
21	APR	1981	700	111.291664	82.624123	6.505274	-14.0	2.9
21	APR	1981	800	111.333336	82.619057	6.514626	-17.9	4.5
21	APR	1981	813	111.342354	82.617752	6.517115	-19.2	4.7
21	APR	1981	900	111.375000	82.612289	6.526720	-23.7	4.9
21	APR	1981	1000	111.416664	82.603874	6.537524	-27.6	3.3
21	APR	1981	1100	111.458336	82.594772	6.542041	-27.9	0.1
21	APR	1981	1109	111.464577	82.593422	6.541961	-27.7	-0.5
21	APR	1981	1200	111.500000	82.585983	6.537640	-26.2	-3.5

# FRAM 3 NAVIGATION - KALMAN

UT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
21	APR	1981	1256	111.538887	82.578331	6.526704	-24.4	-5.7
21	APR	1981	1300	111.541664	82.577805	6.525750	-24.3	-5.8
21	APR	1981	1400	111.583336	82.570236	6.509933	-22.4	-6.6
21	APR	1981	1442	111.612495	82.565308	6.498487	-21.0	-6.3
21	APR	1981	1500	111.625000	82.563301	6.493840	-20.3	-6.0
21	APR	1981	1600	111.666664	82.557083	6.480904	-18.1	-4.0
21	APR	1981	1628	111.686104	82.554420	6.476948	-17.1	-2.8
21	APR	1981	1700	111.708336	82.551521	6.473898	-16.4	-1.9
21	APR	1981	1703	111.710419	82.551254	6.473660	-16.4	-1.9
21	APR	1981	1800	111.750000	82.546219	6.468705	-16.6	-2.9
21	APR	1981	1814	111.759727	82.544945	6.466810	-17.0	-3.6
21	APR	1981	1900	111.791664	82.540550	6.457969	-18.4	-5.5
21	APR	1981	2000	111.833336	82.534172	6.443853	-21.0	-5.1
21	APR	1981	2100	111.875000	82.526970	6.435577	-23.3	-1.1
21	APR	1981	2148	111.908333	82.520744	6.436821	-24.5	-2.1
21	APR	1981	2200	111.916664	82.519157	6.437990	-24.6	-2.6
21	APR	1981	2220	111.930550	82.516487	6.440454	-24.8	-3.3
21	APR	1981	2300	111.958336	82.511086	6.446420	-25.1	-3.7
21	APR	1981	2335	111.982635	82.506325	6.451707	-25.3	-3.6
22	APR	1981	0	112.000000	82.502692	6.455314	-25.5	-3.4
22	APR	1981	100	112.041664	82.494667	6.463049	-24.9	-2.7
22	APR	1981	123	112.057640	82.491608	6.465468	-24.3	-2.4
22	APR	1981	153	112.078468	82.487740	6.468066	-23.3	-1.8
22	APR	1981	200	112.083336	82.486862	6.468580	-23.1	-1.7
22	APR	1981	300	112.125000	82.479622	6.471185	-21.8	-0.2
22	APR	1981	311	112.132637	82.478325	6.471217	-21.8	-0.1
22	APR	1981	340	112.152779	82.474915	6.470445	-21.7	-1.2
22	APR	1981	400	112.166664	82.472565	6.469033	-21.7	-2.2
22	APR	1981	459	112.207642	82.465622	6.466070	-21.8	-5.1
22	APR	1981	500	112.208336	82.465500	6.459860	-21.8	-5.2
22	APR	1981	526	112.226387	82.462433	6.453811	-21.8	-5.0
22	APR	1981	600	112.250000	82.458405	6.445495	-22.0	-5.5
22	APR	1981	647	112.282646	82.452751	6.438371	-22.6	-1.2
22	APR	1981	700	112.291664	82.451157	6.438204	-22.9	-0.6
22	APR	1981	800	112.333336	82.443428	6.446510	-25.0	-4.9
22	APR	1981	857	112.372917	82.435341	6.455840	-27.4	-1.8
22	APR	1981	900	112.375000	82.434898	6.456045	-27.5	-1.5
22	APR	1981	1000	112.416664	82.425789	6.451894	-28.0	-4.5
22	APR	1981	1021	112.431252	82.422630	6.447331	-27.5	-6.1
22	APR	1981	1100	112.458336	82.416954	6.435934	-26.3	-4.0
22	APR	1981	1200	112.500000	82.408691	6.416013	-24.8	-7.7
22	APR	1981	1207	112.504860	82.407753	6.413861	-24.6	-7.4
22	APR	1981	1226	112.518059	82.405235	6.408402	-24.3	-6.7
22	APR	1981	1300	112.541664	82.400826	6.399962	-23.7	-5.6
22	APR	1981	1353	112.578468	82.394279	6.388612	-21.7	-5.1
22	APR	1981	1400	112.583336	82.393463	6.387338	-21.3	-5.2
22	APR	1981	1500	112.625000	82.386986	6.373620	-18.8	-6.1
22	APR	1981	1539	112.652077	82.383163	6.363603	-17.6	-6.5
22	APR	1981	1600	112.666664	82.381195	6.357955	-17.0	-6.7
22	APR	1981	1618	112.679169	82.379570	6.353018	-16.4	-6.8
22	APR	1981	1700	112.708336	82.375961	6.341284	-15.4	-6.9
22	APR	1981	1725	112.725700	82.373924	6.334281	-14.9	-6.9
22	APR	1981	1800	112.750000	82.371185	6.324653	-14.0	-6.6
22	APR	1981	1804	112.752777	82.370888	6.323577	-13.9	-6.6
22	APR	1981	1900	112.791664	82.366936	6.308909	-12.2	-6.4
22	APR	1981	1950	112.826385	82.363831	6.295554	-10.9	-6.8
22	APR	1981	2000	112.833336	82.363251	6.292745	-10.7	-7.0
22	APR	1981	2100	112.875000	82.359894	6.275290	-10.2	-7.1
22	APR	1981	2200	112.916664	82.356544	6.259665	-10.6	-5.4
22	APR	1981	2246	112.948608	82.353859	6.251585	-11.0	-3.2
22	APR	1981	2300	112.958336	82.353020	6.249953	-11.1	-2.5
23	APR	1981	0	113.000000	82.349457	6.246406	-10.6	-0.8
23	APR	1981	34	113.023613	82.347572	6.245455	-9.8	-0.7
23	APR	1981	100	113.041664	82.346260	6.244711	-9.0	-0.8
23	APR	1981	200	113.083336	82.343651	6.242547	-7.1	-1.0
23	APR	1981	222	113.098610	82.342650	6.241647	-6.4	-1.0
23	APR	1981	300	113.125000	82.341637	6.240020	-5.4	-1.1
23	APR	1981	400	113.166664	82.340034	6.237123	-4.7	-1.4

FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
23	APR	1981	410	113.173615	82.339783	6.236554	-4.6	-1.4
23	APR	1981	500	113.208336	82.338509	6.233157	-4.9	-1.9
23	APR	1981	558	113.248604	82.336830	6.227783	-5.9	-2.6
23	APR	1981	600	113.250000	82.336769	6.227567	-6.0	-2.7
23	APR	1981	700	113.291664	82.334595	6.220351	-7.5	-3.2
23	APR	1981	800	113.333336	82.331932	6.212265	-8.9	-3.3
23	APR	1981	900	113.375000	82.328873	6.204452	-9.9	-3.1
23	APR	1981	1000	113.416664	82.325562	6.197515	-10.4	-2.7
23	APR	1981	1100	113.458336	82.322136	6.190964	-10.7	-2.9
23	APR	1981	1118	113.470833	82.321091	6.188796	-10.7	-3.1
23	APR	1981	1155	113.496529	82.318924	6.183707	-10.9	-3.8
23	APR	1981	1200	113.500000	82.318626	6.182933	-11.0	-3.9
23	APR	1981	1300	113.541664	82.315094	6.172232	-10.6	-4.8
23	APR	1981	1303	113.543755	82.314926	6.171654	-10.5	-4.8
23	APR	1981	1341	113.570137	82.312897	6.164242	-8.9	-4.8
23	APR	1981	1400	113.583336	82.312042	6.160556	-7.6	-4.8
23	APR	1981	1448	113.616669	82.310249	6.151195	-6.8	-5.0
23	APR	1981	1500	113.625000	82.309799	6.148753	-7.1	-5.1
23	APR	1981	1526	113.643059	82.308716	6.143256	-8.4	-5.4
23	APR	1981	1600	113.666664	82.306931	6.135699	-11.0	-5.6
23	APR	1981	1700	113.708336	82.303024	6.121975	-11.8	-5.8
23	APR	1981	1712	113.716667	82.302277	6.119260	-11.1	-5.5
23	APR	1981	1800	113.750000	82.299774	6.108734	-8.1	-5.4
23	APR	1981	1858	113.790276	82.297623	6.095855	-6.2	-5.7
23	APR	1981	1900	113.791664	82.297554	6.095397	-6.2	-5.7
23	APR	1981	2000	113.833336	82.295441	6.081717	-7.2	-5.4
23	APR	1981	2100	113.875000	82.292740	6.070514	-9.4	-5.6
23	APR	1981	2149	113.909027	82.290085	6.065643	-10.5	-5.3
23	APR	1981	2200	113.916664	82.289459	6.065159	-10.6	-5.0
23	APR	1981	2300	113.958336	82.286595	6.065440	-10.4	-0.7
23	APR	1981	2336	113.983337	82.284042	6.066441	-9.8	0.6
24	APR	1981	0	114.000000	82.282791	6.066991	-9.6	0.5
24	APR	1981	18	114.012505	82.281868	6.067305	-9.5	0.4
24	APR	1981	100	114.041664	82.279701	6.067746	-9.5	0.2
24	APR	1981	122	114.056946	82.278564	6.067876	-9.5	0.1
24	APR	1981	200	114.083336	82.276649	6.068162	-9.2	0.3
24	APR	1981	206	114.087502	82.276352	6.068246	-9.1	0.4
24	APR	1981	300	114.125000	82.273781	6.069622	-8.4	0.9
24	APR	1981	309	114.131248	82.273376	6.069942	-8.2	0.9
24	APR	1981	354	114.162498	82.271439	6.071821	-7.8	1.1
24	APR	1981	400	114.166664	82.271187	6.072099	-7.7	1.2
24	APR	1981	455	114.204865	82.268852	6.075716	-8.2	2.5
24	APR	1981	500	114.208336	82.268623	6.076235	-8.3	2.7
24	APR	1981	600	114.250000	82.265732	6.085420	-9.7	4.7
24	APR	1981	700	114.291664	82.262321	6.096789	-11.3	4.1
24	APR	1981	800	114.333336	82.258392	6.102497	-12.9	0.2
24	APR	1981	826	114.351387	82.256538	6.101530	-13.6	-2.1
24	APR	1981	900	114.375000	82.253944	6.096871	-14.6	-4.7
24	APR	1981	1000	114.416664	82.248863	6.082480	-16.9	-6.5
24	APR	1981	1011	114.424309	82.247841	6.079631	-17.3	-6.4
24	APR	1981	1100	114.458336	82.243019	6.067721	-18.9	-5.6
24	APR	1981	1156	114.497223	82.237198	6.055868	-19.2	-5.2
24	APR	1981	1200	114.500000	82.236778	6.055030	-19.1	-5.3
24	APR	1981	1216	114.511108	82.235138	6.051617	-18.9	-5.4
24	APR	1981	1249	114.534027	82.231819	6.044149	-18.3	-6.0
24	APR	1981	1300	114.541664	82.230736	6.041487	-18.1	-6.2
24	APR	1981	1340	114.569450	82.226883	6.031154	-17.6	-6.7
24	APR	1981	1400	114.583336	82.224976	6.025796	-17.6	-6.8
24	APR	1981	1402	114.584724	82.224785	6.025255	-17.5	-6.8
24	APR	1981	1500	114.625000	82.219337	6.009897	-17.1	-6.4
24	APR	1981	1525	114.642365	82.217041	6.003754	-16.8	-6.0
24	APR	1981	1548	114.658333	82.214966	5.998416	-16.5	-5.7
24	APR	1981	1600	114.666664	82.213905	5.995725	-16.3	-5.6
24	APR	1981	1620	114.680550	82.212166	5.991355	-15.9	-5.4
24	APR	1981	1700	114.708336	82.208617	5.983078	-15.1	-4.9
24	APR	1981	1734	114.731941	82.206100	5.976799	-14.5	-4.3
24	APR	1981	1800	114.750000	82.204094	5.972524	-14.1	-4.0
24	APR	1981	1806	114.754173	82.203644	5.971582	-14.0	-3.9

# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
24	APR	1981	1900	114.791664	82.199661	5.961770	-13.4	-6.1
24	APR	1981	1952	114.827782	82.195961	5.944006	-13.0	-11.2
24	APR	1981	2000	114.833336	82.195396	5.940329	-12.9	-12.0
24	APR	1981	2100	114.875000	82.191368	5.905717	-11.8	-11.6
24	APR	1981	2108	114.880554	82.190865	5.906190	-11.5	-10.7
24	APR	1981	2200	114.916664	82.167798	5.890196	-10.4	-5.0
24	APR	1981	2255	114.954865	82.184769	5.883649	-10.2	-1.8
24	APR	1981	2300	114.958336	82.184494	5.883300	-10.3	-1.7
24	APR	1981	2326	114.976387	82.183037	5.881700	-10.5	-1.4
25	APR	1981	0	115.000000	82.181076	5.880026	-10.8	-1.2
25	APR	1981	14	115.009727	82.180260	5.879387	-10.8	-1.1
25	APR	1981	43	115.029854	82.178556	5.878103	-10.8	-1.1
25	APR	1981	100	115.041664	82.177559	5.877417	-10.8	-1.0
25	APR	1981	113	115.050690	82.176796	5.876959	-10.8	-0.8
25	APR	1981	200	115.083336	82.174065	5.876075	-10.6	0.0
25	APR	1981	200	115.083336	82.174065	5.876075	-10.6	0.0
25	APR	1981	231	115.104858	82.172295	5.876382	-10.5	0.5
25	APR	1981	300	115.125000	82.170647	5.877115	-10.5	0.7
25	APR	1981	301	115.125694	82.170593	5.877143	-10.5	0.7
25	APR	1981	400	115.166664	82.167160	5.876353	-11.1	0.1
25	APR	1981	419	115.179863	82.166008	5.876230	-11.3	-0.4
25	APR	1981	449	115.200691	82.164146	5.877369	-11.7	-1.0
25	APR	1981	500	115.208336	82.163345	5.876677	-11.9	-1.2
25	APR	1981	600	115.250000	82.159401	5.874323	-13.1	-0.3
25	APR	1981	607	115.254860	82.158897	5.874299	-13.3	0.1
25	APR	1981	700	115.291664	82.154900	5.876884	-14.7	1.9
25	APR	1981	800	115.333336	82.149841	5.880566	-16.5	0.4
25	APR	1981	900	115.375000	82.144196	5.875583	-18.3	-5.1
25	APR	1981	941	115.403473	82.140038	5.864092	-19.2	-4.9
25	APR	1981	1000	115.416664	82.138046	5.858948	-19.6	-10.1
25	APR	1981	1048	115.450005	82.132869	5.846740	-20.0	-10.4
25	APR	1981	1100	115.458336	82.131592	5.831929	-20.0	-9.9
25	APR	1981	1128	115.477776	82.128571	5.821609	-19.9	-8.9
25	APR	1981	1157	115.497917	82.125465	5.811964	-19.7	-8.0
25	APR	1981	1200	115.500000	82.125145	5.811037	-19.7	-8.0
25	APR	1981	1233	115.522919	82.121651	5.801230	-19.6	-7.1
25	APR	1981	1300	115.541664	82.118782	5.794006	-19.8	-6.5
25	APR	1981	1314	115.551392	82.117279	5.790453	-19.9	-6.4
25	APR	1981	1343	115.571526	82.114120	5.783293	-20.4	-6.3
25	APR	1981	1400	115.583336	82.112221	5.779095	-20.9	-6.3
25	APR	1981	1416	115.595833	82.110168	5.774616	-21.4	-6.4
25	APR	1981	1459	115.624306	82.105362	5.764485	-21.7	-6.1
25	APR	1981	1500	115.625000	82.105247	5.764246	-21.7	-6.1
25	APR	1981	1528	115.644440	82.102005	5.757771	-21.1	-5.6
25	APR	1981	1600	115.666664	82.098442	5.751155	-20.0	-4.9
25	APR	1981	1646	115.698604	82.093605	5.743441	-19.1	-3.7
25	APR	1981	1700	115.708336	82.092163	5.741460	-19.0	-3.5
25	APR	1981	1714	115.718056	82.090729	5.739614	-18.9	-3.3
25	APR	1981	1800	115.750000	82.086067	5.733182	-18.6	-4.5
25	APR	1981	1832	115.772224	82.082878	5.728099	-18.3	-7.0
25	APR	1981	1900	115.791664	82.080132	5.717129	-17.9	-9.4
25	APR	1981	1900	115.791664	82.080132	5.717129	-17.9	-9.4
25	APR	1981	2000	115.833336	82.074493	5.690957	-16.8	-12.2
25	APR	1981	2100	115.875000	82.069206	5.683482	-15.9	-10.6
25	APR	1981	2118	115.887505	82.067665	5.686408	-15.8	-9.5
25	APR	1981	2200	115.916664	82.064117	5.642841	-15.4	-7.1
25	APR	1981	2206	115.920837	82.063622	5.641212	-15.3	-6.8
25	APR	1981	2300	115.958336	82.059286	5.628937	-14.3	-5.3
25	APR	1981	2305	115.961800	82.058907	5.627906	-14.2	-5.3
25	APR	1981	2354	115.995827	82.055252	5.618284	-13.6	-4.6
26	APR	1981	0	116.000000	82.054817	5.617218	-13.6	-4.5
26	APR	1981	20	116.013885	82.053345	5.613920	-13.6	-4.0
26	APR	1981	51	116.035423	82.051071	5.609662	-13.5	-3.1
26	APR	1981	100	116.041664	82.050407	5.608635	-13.5	-2.8
26	APR	1981	142	116.070831	82.047379	5.605092	-13.2	-1.5
26	APR	1981	200	116.083336	82.046097	5.604191	-13.0	-1.0
26	APR	1981	208	116.088890	82.045540	5.603903	-12.9	-0.8
26	APR	1981	238	116.109718	82.043495	5.603366	-12.1	-0.1

# FRAM 3 NAVIGATION - KALMAN

LT	MGN	YEAR	GMT	JULDOY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
20	APR	1981	300	116.125000	82.042107	5.603388	-11.1	0.2
20	APR	1981	330	116.145836	82.040451	5.603783	-9.2	0.5
20	APR	1981	356	116.163887	82.039276	5.604340	-7.5	0.6
20	APR	1981	400	116.166664	82.039116	5.604441	-7.3	0.7
20	APR	1981	424	116.183327	82.036246	5.605142	-6.3	0.9
20	APR	1981	500	116.208336	82.036957	5.606597	-7.7	1.2
20	APR	1981	518	116.220833	82.036125	5.607530	-9.5	1.4
20	APR	1981	544	116.238892	82.034607	5.609090	-11.9	1.6
20	APR	1981	600	116.250000	82.033524	5.610142	-13.1	1.7
20	APR	1981	700	116.291664	82.028862	5.614176	-14.7	1.6
20	APR	1981	800	116.333336	82.024254	5.616919	-13.7	0.7
20	APR	1981	900	116.375000	82.019890	5.616991	-13.6	-0.7
20	APR	1981	941	116.403473	82.016808	5.614975	-14.3	-1.9
20	APR	1981	1000	116.416664	82.015320	5.613368	-14.7	-2.4
20	APR	1981	1039	116.443748	82.012146	5.608840	-15.4	-3.5
20	APR	1981	1100	116.458336	82.010384	5.605794	-15.6	-3.9
20	APR	1981	1105	116.461800	82.009964	5.605025	-15.7	-4.0
20	APR	1981	1126	116.476387	82.008163	5.601672	-16.0	-4.2
20	APR	1981	1200	116.500000	82.005196	5.596246	-16.3	-3.9
20	APR	1981	1225	116.517365	82.002975	5.592627	-16.5	-3.5
20	APR	1981	1251	116.535423	82.000656	5.589328	-16.5	-3.0
20	APR	1981	1300	116.541664	81.999847	5.588296	-16.5	-2.9
20	APR	1981	1400	116.583336	81.994545	5.582577	-16.1	-2.1
20	APR	1981	1500	116.625000	81.989395	5.577901	-15.6	-2.0
20	APR	1981	1557	116.664581	81.984673	5.573498	-14.9	-2.0
20	APR	1981	1600	116.666664	81.984426	5.573261	-14.8	-2.0
20	APR	1981	1622	116.681946	81.982697	5.571523	-14.3	-2.0
20	APR	1981	1700	116.708336	81.979851	5.568637	-13.3	-1.8
20	APR	1981	1743	116.738190	81.976898	5.566138	-12.1	-1.1
20	APR	1981	1800	116.750000	81.975800	5.565503	-11.6	-0.8
20	APR	1981	1808	116.755554	81.975304	5.565278	-11.4	-0.7
20	APR	1981	1900	116.791664	81.972298	5.563609	-9.9	-1.6
20	APR	1981	1954	116.829183	81.969635	5.556486	-8.3	-5.5
20	APR	1981	2000	116.833336	81.969366	5.555151	-8.2	-6.0
20	APR	1981	2100	116.875000	81.966965	5.538595	-6.8	-6.8
20	APR	1981	2117	116.886810	81.966354	5.534529	-6.5	-5.6
20	APR	1981	2200	116.916664	81.964951	5.528126	-5.6	-2.0
20	APR	1981	2300	116.958336	81.963303	5.528197	-4.5	1.2
20	APR	1981	2304	116.961113	81.963211	5.528386	-4.4	1.2
20	APR	1981	2328	116.977775	81.962669	5.529561	-3.9	1.2
27	APR	1981	0	117.000000	81.962036	5.530515	-3.4	0.1
27	APR	1981	16	117.011108	81.961746	5.530319	-3.2	-0.8
27	APR	1981	52	117.036110	81.961166	5.528262	-2.9	-1.9
27	APR	1981	100	117.041664	81.961044	5.527674	-2.8	-1.9
27	APR	1981	116	117.052773	81.960800	5.526496	-2.8	-1.9
27	APR	1981	200	117.083336	81.960129	5.524228	-2.9	-0.5
27	APR	1981	240	117.111115	81.959480	5.525110	-3.1	1.6
27	APR	1981	300	117.125000	81.959137	5.526797	-3.2	2.7
27	APR	1981	400	117.166664	81.958054	5.536448	-3.4	5.5
27	APR	1981	500	117.208336	81.956940	5.551389	-3.5	7.3
27	APR	1981	600	117.250000	81.955833	5.569147	-3.3	7.9
27	APR	1981	700	117.291664	81.954788	5.587012	-3.1	7.4
27	APR	1981	800	117.333336	81.953842	5.602324	-2.8	5.7
27	APR	1981	900	117.375000	81.953003	5.612762	-2.5	3.2
27	APR	1981	1000	117.416664	81.952240	5.616632	-2.3	0.1
27	APR	1981	1100	117.458336	81.951500	5.613152	-2.3	-3.1
27	APR	1981	1200	117.500000	81.950691	5.602744	-2.8	-5.8
27	APR	1981	1300	117.541664	81.949638	5.587318	-3.8	-7.3
27	APR	1981	1400	117.583336	81.948135	5.570566	-5.6	-6.8
27	APR	1981	1437	117.609032	81.946869	5.561846	-7.1	-5.3
27	APR	1981	1500	117.625000	81.945923	5.557664	-8.1	-4.1
27	APR	1981	1508	117.630554	81.945557	5.556475	-8.5	-3.6
27	APR	1981	1600	117.666664	81.942932	5.551386	-9.8	-1.9
27	APR	1981	1622	117.681946	81.941757	5.549878	-9.9	-1.7
27	APR	1981	1654	117.704163	81.940048	5.547715	-9.6	-1.8
27	APR	1981	1700	117.708336	81.939735	5.547297	-9.7	-1.8
27	APR	1981	1800	117.750000	81.936752	5.542866	-8.3	-2.0
27	APR	1981	1808	117.755554	81.936409	5.542259	-7.9	-2.0

# FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
27	APR	1981	1900	117.791664	81.934441	5.538059	-2.3	-2.3
27	APR	1981	1902	117.793060	81.934372	5.537878	-6.2	-2.4
27	APR	1981	1921	117.806252	81.933754	5.536069	-5.8	-2.6
27	APR	1981	1954	117.829103	81.932793	5.532575	-5.0	-2.9
27	APR	1981	2000	117.833336	81.932632	5.531907	-4.8	-2.9
27	APR	1981	2100	117.875000	81.931343	5.524352	-3.2	-3.9
27	APR	1981	2107	117.879860	81.931229	5.523289	-3.0	-4.0
27	APR	1981	2140	117.902779	81.930756	5.517830	-2.3	-4.4
27	APR	1981	2200	117.916664	81.930527	5.514509	-1.9	-4.2
27	APR	1981	2215	117.927086	81.930374	5.512162	-1.7	-3.9
27	APR	1981	2234	117.940277	81.930214	5.509446	-1.5	-3.5
27	APR	1981	2253	117.953468	81.930077	5.507060	-1.2	-3.0
27	APR	1981	2300	117.958336	81.930038	5.506265	-1.1	-2.9
27	APR	1981	2326	117.976387	81.929916	5.503683	-0.7	-2.3
28	APR	1981	0	118.000000	81.929840	5.501051	-0.2	-1.7
28	APR	1981	3	118.002083	81.929832	5.500854	-0.2	-1.7
28	APR	1981	20	118.013885	81.929825	5.499840	-0.1	-1.4
28	APR	1981	100	118.041664	81.929825	5.498149	0.1	-0.8
28	APR	1981	151	118.077087	81.929855	5.497273	0.0	-0.2
28	APR	1981	200	118.083336	81.929855	5.497228	0.0	-0.1
28	APR	1981	207	118.088196	81.929855	5.497210	0.0	0.0
28	APR	1981	300	118.125000	81.929817	5.497608	-0.2	0.4
28	APR	1981	300	118.125000	81.929817	5.497608	-0.2	0.4
28	APR	1981	339	118.152077	81.929802	5.498454	0.1	0.6
28	APR	1981	354	118.162498	81.929810	5.498836	0.2	0.7
28	APR	1981	400	118.166664	81.929825	5.498993	0.3	0.7
28	APR	1981	448	118.200005	81.929924	5.500586	0.4	1.2
28	APR	1981	500	118.208336	81.929955	5.501174	0.3	1.4
28	APR	1981	527	118.227081	81.929993	5.502831	0.2	1.8
28	APR	1981	546	118.240273	81.930008	5.504205	0.1	2.0
28	APR	1981	600	118.250000	81.930016	5.505290	0.1	2.1
28	APR	1981	636	118.275002	81.930054	5.508204	0.4	2.1
28	APR	1981	700	118.291664	81.930130	5.510100	0.8	2.0
28	APR	1981	800	118.333336	81.930466	5.514478	0.8	1.8
28	APR	1981	824	118.349998	81.930542	5.516144	0.4	1.8
28	APR	1981	900	118.375000	81.930519	5.518584	-0.6	1.7
28	APR	1981	1000	118.416664	81.930084	5.522214	-2.0	1.4
28	APR	1981	1012	118.424995	81.929947	5.522810	-2.2	1.2
28	APR	1981	1048	118.450005	81.929451	5.524263	-2.9	0.9
28	APR	1981	1100	118.458336	81.929253	5.524633	-3.2	0.7
28	APR	1981	1107	118.463196	81.929131	5.524823	-3.3	0.7
28	APR	1981	1123	118.474304	81.928825	5.525177	-3.7	0.5
28	APR	1981	1159	118.499306	81.928040	5.525545	-4.4	0.1
28	APR	1981	1200	118.500000	81.928017	5.525547	-4.4	0.0
28	APR	1981	1234	118.523613	81.927147	5.525395	-5.0	-0.2
28	APR	1981	1253	118.536804	81.926613	5.525183	-5.3	-0.3
28	APR	1981	1300	118.541664	81.926414	5.525091	-5.4	-0.4
28	APR	1981	1312	118.549995	81.926056	5.524920	-5.6	-0.4
28	APR	1981	1400	118.583336	81.924500	5.524069	-6.5	-0.5
28	APR	1981	1420	118.597221	81.923767	5.523623	-7.0	-0.6
28	APR	1981	1439	118.610413	81.923027	5.523136	-7.4	-0.7
28	APR	1981	1500	118.625000	81.922165	5.522503	-7.8	-0.9
28	APR	1981	1533	118.647919	81.920753	5.521224	-8.1	-1.2
28	APR	1981	1600	118.666664	81.919546	5.519930	-8.4	-1.3
28	APR	1981	1606	118.670837	81.919266	5.519636	-8.6	-1.3
28	APR	1981	1624	118.683327	81.918419	5.518772	-8.9	-1.2
28	APR	1981	1700	118.708336	81.916641	5.517099	-9.3	-1.3
28	APR	1981	1719	118.721527	81.915688	5.516096	-9.2	-1.5
28	APR	1981	1752	118.744446	81.914070	5.513758	-8.9	-2.3
28	APR	1981	1800	118.750000	81.913689	5.513014	-8.8	-2.6
28	APR	1981	1800	118.750000	81.913689	5.513014	-8.8	-2.6
28	APR	1981	1832	118.772224	81.9112209	5.509286	-8.3	-3.5
28	APR	1981	1900	118.791664	81.911011	5.505340	-7.6	-3.8
28	APR	1981	1905	118.795135	81.910805	5.504609	-7.5	-3.8
28	APR	1981	2000	118.833336	81.908821	5.496644	-5.8	-3.6
28	APR	1981	2018	118.845633	81.908287	5.494204	-5.2	-3.5
28	APR	1981	2050	118.868050	81.907494	5.490121	-4.0	-3.2
28	APR	1981	2100	118.875000	81.907288	5.488903	-3.6	-3.1

FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
26	APR	1981	2200	118.918884	81.908464	5.482152	-1.7	-2.7
26	APR	1981	2204	118.919441	81.906433	5.481734	-1.6	-2.7
28	APR	1981	2237	118.942360	81.906212	5.478431	-1.0	-2.5
28	APR	1981	2300	118.958336	81.906105	5.476301	-0.8	-2.3
28	APR	1981	2314	118.968056	81.906044	5.475078	-0.7	-2.2
28	APR	1981	2330	118.979184	81.905991	5.473750	-0.7	-2.1
28	APR	1981	2350	118.993050	81.905922	5.472201	-0.6	-1.9
29	APR	1981	0	119.000000	81.905891	5.471473	-0.5	-1.9
29	APR	1981	100	119.041664	81.905739	5.467652	-0.5	-1.5
29	APR	1981	102	119.043060	81.905731	5.467535	-0.5	-1.5
29	APR	1981	118	119.054169	81.905685	5.466619	-0.5	-1.5
29	APR	1981	200	119.083336	81.905548	5.464423	-0.7	-1.2
29	APR	1981	250	119.118050	81.905342	5.462594	-0.7	-0.7
29	APR	1981	300	119.125000	81.905304	5.462366	-0.7	-0.5
29	APR	1981	358	119.165276	81.905037	5.461590	-1.1	-0.4
29	APR	1981	400	119.166664	81.905022	5.461501	-1.2	-0.4
29	APR	1981	438	119.193054	81.904732	5.460780	-1.6	-0.7
29	APR	1981	500	119.208336	81.904541	5.460083	-1.7	-0.9
29	APR	1981	546	119.240273	81.904114	5.458596	-1.6	-0.5
29	APR	1981	600	119.250000	81.903999	5.458389	-1.5	-0.2
29	APR	1981	626	119.268059	81.903816	5.458476	-1.2	0.4
29	APR	1981	657	119.289581	81.903648	5.459298	-0.8	0.9
29	APR	1981	700	119.291664	81.903633	5.459408	-0.8	1.0
29	APR	1981	734	119.315277	81.903519	5.460824	-0.5	1.1
29	APR	1981	800	119.333336	81.903473	5.461900	-0.3	1.0
29	APR	1981	845	119.364586	81.903419	5.463567	-0.2	0.9
29	APR	1981	900	119.375000	81.903397	5.464108	-0.3	0.9
29	APR	1981	922	119.390282	81.903351	5.464892	-0.5	0.9
29	APR	1981	959	119.415977	81.903214	5.465981	-1.0	0.5
29	APR	1981	1000	119.416664	81.903206	5.466001	-1.0	0.5
29	APR	1981	1015	119.427086	81.903114	5.466233	-1.3	0.3
29	APR	1981	1033	119.439583	81.902977	5.466322	-1.6	0.0
29	APR	1981	1100	119.458336	81.902710	5.466133	-2.1	-0.3
29	APR	1981	1109	119.464577	81.902603	5.466009	-2.3	-0.4
29	APR	1981	1140	119.490273	81.902077	5.465294	-3.0	-0.6
29	APR	1981	1200	119.500000	81.901640	5.464968	-3.2	-0.6
29	APR	1981	1201	119.500694	81.901825	5.464944	-3.3	-0.6
29	APR	1981	1221	119.514587	81.901451	5.464446	-3.7	-0.7
29	APR	1981	1300	119.541664	81.900566	5.463392	-4.7	-0.8
29	APR	1981	1331	119.563194	81.899704	5.462390	-5.5	-1.0
29	APR	1981	1347	119.574310	81.899208	5.461724	-5.9	-1.2
29	APR	1981	1400	119.583336	81.898788	5.461071	-6.1	-1.4
29	APR	1981	1443	119.613190	81.897278	5.458074	-6.8	-2.2
29	APR	1981	1500	119.625000	81.896637	5.456546	-7.1	-2.5
29	APR	1981	1517	119.630810	81.895973	5.454901	-7.3	-2.6
29	APR	1981	1532	119.647224	81.895370	5.453415	-7.5	-2.6
29	APR	1981	1600	119.666664	81.894196	5.450589	-8.0	-2.7
29	APR	1981	1630	119.687500	81.892845	5.447287	-8.7	-3.1
29	APR	1981	1700	119.708336	81.891350	5.443360	-9.8	-3.7
29	APR	1981	1703	119.710419	81.891190	5.442926	-9.9	-3.8
29	APR	1981	1718	119.720833	81.890366	5.440648	-10.5	-4.1
29	APR	1981	1800	119.750000	81.887671	5.433311	-11.1	-5.0
29	APR	1981	1816	119.761108	81.886925	5.430176	-10.8	-5.3
29	APR	1981	1900	119.791664	81.884499	5.420744	-9.3	-5.9
29	APR	1981	2000	119.833336	81.881912	5.407344	-6.7	-5.6
29	APR	1981	2001	119.834023	81.881674	5.407138	-6.7	-5.4
29	APR	1981	2017	119.845146	81.881325	5.403951	-6.1	-5.0
29	APR	1981	2100	119.875000	81.880104	5.396766	-4.5	-3.8
29	APR	1981	2147	119.907646	81.879166	5.390894	-2.9	-2.9
29	APR	1981	2200	119.916664	81.878975	5.389461	-2.5	-2.8
29	APR	1981	2203	119.918755	81.878937	5.389136	-2.4	-2.8
29	APR	1981	2224	119.933327	81.878700	5.386927	-1.8	-2.7
29	APR	1981	2300	119.958336	81.878456	5.383338	-0.7	-2.5
29	APR	1981	2301	119.959023	81.878456	5.383242	-0.7	-2.5
29	APR	1981	2334	119.981941	81.878410	5.380136	0.1	-2.4
29	APR	1981	2350	119.993050	81.878433	5.378721	0.4	-2.3
30	APR	1981	0	120.000000	81.878446	5.377873	0.5	-2.2
30	APR	1981	12	120.008331	81.878487	5.376893	0.6	-2.1



FRAM 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
30	APR	1981	100	120.041664	81.878639	5.373308	0.4	-1.8
30	APR	1981	136	120.066673	81.878685	5.370874	0.0	-1.7
30	APR	1981	200	120.083336	81.878670	5.369381	-0.3	-1.6
30	APR	1981	200	120.083336	81.878670	5.369381	-0.3	-1.6
30	APR	1981	300	120.125000	81.878464	5.366030	-1.1	-1.4
30	APR	1981	308	120.130554	81.878410	5.365592	-1.2	-1.4
30	APR	1981	322	120.140282	81.878311	5.364813	-1.4	-1.5
30	APR	1981	348	120.156333	81.878082	5.363268	-1.8	-1.6
30	APR	1981	400	120.166664	81.877960	5.362532	-2.0	-1.7
30	APR	1981	456	120.205559	81.877243	5.358889	-2.6	-1.5
30	APR	1981	500	120.208336	81.877190	5.358656	-2.6	-1.5
30	APR	1981	536	120.233337	81.876671	5.356865	-2.7	-1.1
30	APR	1981	600	120.250000	81.876305	5.355944	-2.9	-0.9
30	APR	1981	607	120.254860	81.876190	5.355719	-2.9	-0.8
30	APR	1981	644	120.280556	81.875580	5.354858	-3.2	-0.4
30	APR	1981	700	120.291664	81.875298	5.354663	-3.3	-0.2
30	APR	1981	755	120.329865	81.874290	5.354650	-3.3	0.2
30	APR	1981	800	120.333336	81.874199	5.354685	-3.3	0.2
30	APR	1981	832	120.355560	81.873650	5.355019	-3.0	0.4
30	APR	1981	900	120.375000	81.873215	5.355540	-2.8	0.6
30	APR	1981	943	120.404854	81.872589	5.356863	-2.6	0.9
30	APR	1981	1000	120.416664	81.872345	5.357467	-2.7	0.9
30	APR	1981	1020	120.430550	81.872040	5.358113	-2.6	0.7
30	APR	1981	1057	120.456245	81.871376	5.358594	-1.8	-0.2
30	APR	1981	1100	120.458336	81.871315	5.358566	-3.9	-0.3
30	APR	1981	1132	120.480560	81.870537	5.357596	-5.1	-1.2
30	APR	1981	1200	120.500000	81.869698	5.356002	-6.0	-1.7
30	APR	1981	1300	120.541664	81.867485	5.352414	-7.2	-1.1
30	APR	1981	1319	120.554863	81.866722	5.351839	-7.5	-0.5
30	APR	1981	1400	120.583336	81.864990	5.351485	-8.2	-0.2
30	APR	1981	1429	120.603477	81.863655	5.351037	-8.8	-0.7
30	APR	1981	1500	120.625000	81.862106	5.349671	-9.7	-1.6
30	APR	1981	1600	120.666664	81.858658	5.344390	-11.6	-2.8
30	APR	1981	1615	120.677086	81.857689	5.342782	-12.2	-2.9
30	APR	1981	1700	120.708336	81.854492	5.337315	-14.2	-3.7
30	APR	1981	1800	120.750000	81.849533	5.326111	-16.0	-6.5
30	APR	1981	1801	120.750694	81.849449	5.325863	-16.0	-6.6
30	APR	1981	1840	120.777779	81.846085	5.314459	-15.5	-8.7
30	APR	1981	1900	120.791664	81.844460	5.307507	-14.5	-9.6
30	APR	1981	2000	120.833336	81.840302	5.284655	-10.9	-9.8
30	APR	1981	2054	120.870827	81.837565	5.266972	-7.9	-7.2
30	APR	1981	2100	120.875000	81.837334	5.265385	-7.6	-6.8
30	APR	1981	2200	120.916664	81.835258	5.254040	-5.1	-3.4
30	APR	1981	2241	120.945137	81.834236	5.249921	-4.0	-2.1
30	APR	1981	2300	120.958336	81.833662	5.248548	-3.3	-1.8
30	APR	1981	2358	120.998604	81.833069	5.244878	-1.8	-1.8
1	MAY	1981	0	121.000000	81.833054	5.244736	-1.8	-1.9
1	MAY	1981	27	121.018745	81.832825	5.242644	-1.4	-2.2
1	MAY	1981	100	121.041664	81.832603	5.239877	-1.1	-2.2
1	MAY	1981	200	121.083336	81.832237	5.234891	-1.3	-2.3
1	MAY	1981	214	121.093056	81.832130	5.233669	-1.5	-2.3
1	MAY	1981	300	121.125000	81.831680	5.229074	-2.1	-3.1
1	MAY	1981	400	121.166664	81.830803	5.220527	-3.4	-4.4
1	MAY	1981	400	121.166664	81.830803	5.220527	-3.4	-4.4
1	MAY	1981	500	121.208336	81.829430	5.210194	-5.1	-4.1
1	MAY	1981	518	121.220833	81.828903	5.207554	-5.7	-3.6
1	MAY	1981	553	121.245140	81.827736	5.203364	-5.5	-2.8
1	MAY	1981	600	121.250000	81.827492	5.202624	-6.6	-2.7
1	MAY	1981	700	121.291664	81.825287	5.196761	-6.6	-2.6
1	MAY	1981	800	121.333336	81.823349	5.190798	-5.2	-2.5
1	MAY	1981	900	121.375000	81.821953	5.186531	-3.5	-1.1
1	MAY	1981	1000	121.416664	81.821053	5.186293	-2.2	0.8
1	MAY	1981	1042	121.445831	81.820580	5.188143	-2.0	1.3
1	MAY	1981	1100	121.458336	81.820389	5.189030	-2.0	1.2
1	MAY	1981	1117	121.470146	81.820198	5.189763	-2.1	1.0
1	MAY	1981	1200	121.500000	81.819672	5.190659	-2.5	0.0
1	MAY	1981	1230	121.520836	81.819229	5.190084	-3.0	-1.0
1	MAY	1981	1300	121.541664	81.818703	5.188483	-3.5	-1.8

FRAM 3 NAVIGATION - KALMAR.

U	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	MAY	1981	1400	121.583336	81.817368	5.182683	-4.8	-3.2
1	MAY	1981	1500	121.625000	81.815575	5.174467	-6.3	-4.0
1	MAY	1981	1600	121.666664	81.813271	5.164862	-7.9	-4.4
1	MAY	1981	1700	121.708336	81.810493	5.154577	-9.2	-4.6
1	MAY	1981	1800	121.750000	81.807358	5.144018	-10.0	-4.7
1	MAY	1981	1900	121.791664	81.804070	5.133293	-10.1	-4.8
1	MAY	1981	2000	121.833336	81.800941	5.122236	-9.0	-5.0
1	MAY	1981	2009	121.839577	81.800514	5.120527	-8.7	-5.1
1	MAY	1981	2100	121.875000	81.798370	5.110528	-6.7	-5.3
1	MAY	1981	2155	121.913200	81.796791	5.099769	-3.9	-4.8
1	MAY	1981	2200	121.916664	81.796684	5.098884	-3.7	-4.6
1	MAY	1981	2240	121.944450	81.796097	5.092985	-1.8	-3.0
1	MAY	1981	2300	121.958336	81.795944	5.091162	-1.1	-1.8
2	MAY	1981	0	122.000000	81.795906	5.089667	0.8	0.0
2	MAY	1981	27	122.018745	81.796066	5.089629	1.4	0.1
2	MAY	1981	54	122.037498	81.796318	5.089293	2.1	-0.6
2	MAY	1981	100	122.041664	81.796387	5.089147	2.2	-0.7
2	MAY	1981	200	122.083336	81.797211	5.086186	2.5	-1.8
2	MAY	1981	215	122.093750	81.797409	5.085092	2.3	-2.0
2	MAY	1981	300	122.125000	81.797867	5.081292	1.3	-2.4
2	MAY	1981	316	122.136108	81.797966	5.079865	0.8	-2.4
2	MAY	1981	400	122.166664	81.797989	5.075655	-0.6	-2.8
2	MAY	1981	403	122.168755	81.797981	5.075332	-0.7	-2.9
2	MAY	1981	500	122.208336	81.797493	5.068167	-2.3	-3.7
2	MAY	1981	503	122.210419	81.797455	5.067742	-2.3	-3.8
2	MAY	1981	550	122.243050	81.796791	5.060826	-2.7	-3.9
2	MAY	1981	600	122.250000	81.796646	5.059370	-2.7	-3.8
2	MAY	1981	615	122.260414	81.796432	5.057240	-2.6	-3.7
2	MAY	1981	651	122.285423	81.795914	5.052336	-2.8	-3.6
2	MAY	1981	700	122.291664	81.795776	5.051117	-2.8	-3.6
2	MAY	1981	800	122.333336	81.794815	5.042845	-2.9	-3.7
2	MAY	1981	839	122.360413	81.794243	5.037503	-2.4	-3.5
2	MAY	1981	900	122.375000	81.793999	5.034761	-2.0	-3.4
2	MAY	1981	1006	122.416664	81.793571	5.027835	-0.6	-2.7
2	MAY	1981	1027	122.435417	81.793533	5.025353	0.0	-2.2
2	MAY	1981	1100	122.458336	81.793610	5.023133	0.8	-1.3
2	MAY	1981	1111	122.465973	81.793671	5.022658	1.1	-1.0
2	MAY	1981	1200	122.500000	81.794106	5.022218	2.1	0.4
2	MAY	1981	1257	122.539581	81.794800	5.023813	2.3	0.7
2	MAY	1981	1300	122.541664	81.794838	5.023895	2.3	0.7
2	MAY	1981	1323	122.557640	81.795113	5.024397	2.1	0.4
2	MAY	1981	1400	122.583336	81.795502	5.024591	1.7	-0.2
2	MAY	1981	1443	122.613190	81.795769	5.023595	0.5	-1.1
2	MAY	1981	1500	122.625000	81.795792	5.022785	-0.1	-1.5
2	MAY	1981	1508	122.630554	81.795784	5.022319	-0.4	-1.6
2	MAY	1981	1548	122.658333	81.795547	5.019170	-1.8	-2.5
2	MAY	1981	1600	122.666664	81.795418	5.017957	-2.1	-2.8
2	MAY	1981	1628	122.686104	81.795036	5.014668	-2.9	-3.4
2	MAY	1981	1700	122.708336	81.794472	5.010205	-3.5	-4.0
2	MAY	1981	1734	122.731941	81.793777	5.004614	-4.0	-4.7
2	MAY	1981	1800	122.750000	81.793190	4.999659	-4.3	-5.4
2	MAY	1981	1814	122.759727	81.792854	4.996723	-4.5	-5.7
2	MAY	1981	1900	122.791664	81.791702	4.985585	-4.5	-7.2
2	MAY	1981	1920	122.805550	81.791222	4.979920	-4.3	-7.8
2	MAY	1981	2000	122.833336	81.790352	4.967536	-3.7	-8.3
2	MAY	1981	2024	122.849998	81.789902	4.960196	-3.3	-7.9
2	MAY	1981	2100	122.875000	81.789352	4.950153	-2.2	-6.9
2	MAY	1981	2106	122.879173	81.789284	4.948620	-2.0	-6.7
2	MAY	1981	2200	122.916664	81.789047	4.936739	0.5	-5.0
2	MAY	1981	2210	122.923615	81.789085	4.934894	1.0	-4.7
2	MAY	1981	2252	122.952782	81.789543	4.928180	3.1	-3.8
2	MAY	1981	2300	122.958336	81.789668	4.927054	3.4	-3.7
2	MAY	1981	2334	122.981941	81.790451	4.922660	4.8	-3.2
2	MAY	1981	2356	122.997223	81.791054	4.920134	5.4	-2.9
3	MAY	1981	0	123.000000	81.791176	4.919693	5.5	-2.9
3	MAY	1981	100	123.041664	81.793106	4.913790	6.3	-2.4
3	MAY	1981	122	123.056946	81.793861	4.911880	6.4	-2.2
3	MAY	1981	143	123.071526	81.794594	4.910140	6.5	-2.2

# FRAM 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
3	MAY	1981	200	123.083336	81.795189	4.908763	6.5	-2.1
3	MAY	1981	300	123.125000	81.797256	4.903351	6.1	-2.9
3	MAY	1981	310	123.131950	81.797585	4.902197	5.9	-3.2
3	MAY	1981	330	123.145836	81.798210	4.899581	5.6	-3.7
3	MAY	1981	400	123.166664	81.799088	4.894898	5.3	-4.5
3	MAY	1981	413	123.175690	81.799454	4.892604	5.1	-4.8
3	MAY	1981	458	123.206940	81.800629	4.883265	4.5	-6.3
3	MAY	1981	500	123.208336	81.800674	4.882786	4.4	-6.3
3	MAY	1981	516	123.219444	81.801048	4.878768	4.2	-7.0
3	MAY	1981	600	123.250000	81.801949	4.866161	3.3	-8.0
3	MAY	1981	601	123.250694	81.801964	4.865859	3.3	-8.0
3	MAY	1981	645	123.281250	81.802643	4.851946	2.4	-8.8
3	MAY	1981	700	123.291664	81.802818	4.846623	2.0	-9.2
3	MAY	1981	749	123.325691	81.803207	4.828768	0.8	-10.1
3	MAY	1981	800	123.333336	81.803246	4.824566	0.6	-10.1
3	MAY	1981	846	123.365273	81.803337	4.807221	0.5	-9.5
3	MAY	1981	900	123.375000	81.803383	4.802264	0.7	-9.2
3	MAY	1981	937	123.400696	81.803596	4.790232	1.4	-8.0
3	MAY	1981	1000	123.416664	81.803795	4.783556	1.8	-7.3
3	MAY	1981	1019	123.429863	81.803993	4.778526	2.1	-6.7
3	MAY	1981	1050	123.451385	81.804367	4.771155	2.2	-6.0
3	MAY	1981	1100	123.458336	81.804482	4.768922	2.2	-5.8
3	MAY	1981	1125	123.475700	81.804779	4.763493	2.2	-5.7
3	MAY	1981	1200	123.500000	81.805191	4.755888	2.3	-5.8
3	MAY	1981	1205	123.503471	81.805260	4.754782	2.3	-5.9
3	MAY	1981	1238	123.526390	81.805695	4.747298	2.5	-6.2
3	MAY	1981	1300	123.541664	81.806000	4.742081	2.6	-6.4
3	MAY	1981	1351	123.577087	81.806679	4.729755	2.3	-6.2
3	MAY	1981	1400	123.583336	81.806786	4.727668	2.1	-6.1
3	MAY	1981	1458	123.623604	81.807251	4.714583	0.5	-6.2
3	MAY	1981	1500	123.625000	81.807251	4.714110	0.4	-6.3
3	MAY	1981	1536	123.650002	81.807182	4.704982	-1.1	-7.2
3	MAY	1981	1600	123.666664	81.806992	4.698037	-1.9	-8.1
3	MAY	1981	1645	123.697914	81.806343	4.683171	-3.4	-9.3
3	MAY	1981	1700	123.708336	81.806046	4.677836	-3.9	-9.5
3	MAY	1981	1722	123.723610	81.805542	4.669777	-4.6	-9.8
3	MAY	1981	1800	123.750000	81.804474	4.655374	-5.8	-10.2
3	MAY	1981	1830	123.770836	81.803482	4.643626	-6.4	-10.5
3	MAY	1981	1900	123.791664	81.802422	4.631546	-6.7	-10.8
3	MAY	1981	2000	123.833336	81.800308	4.607065	-6.0	-10.6
3	MAY	1981	2016	123.844444	81.799805	4.600734	-5.6	-10.4
3	MAY	1981	2100	123.875000	81.798622	4.584103	-4.2	-9.6
3	MAY	1981	2200	123.916664	81.797554	4.563916	-2.5	-8.0
3	MAY	1981	2202	123.918000	81.797523	4.563316	-2.4	-7.9
3	MAY	1981	2242	123.945831	81.797081	4.552728	-1.8	-6.0
3	MAY	1981	2300	123.958336	81.796906	4.549037	-1.7	-4.9
4	MAY	1981	0	124.000000	81.796455	4.541030	-0.9	-2.6
4	MAY	1981	29	124.020142	81.796364	4.538315	-0.2	-2.4
4	MAY	1981	100	124.041664	81.796410	4.535513	0.8	-2.4
4	MAY	1981	102	124.043060	81.796417	4.535328	0.8	-2.4
4	MAY	1981	200	124.083336	81.796652	4.529516	1.5	-2.9
4	MAY	1981	217	124.095146	81.796974	4.527596	1.2	-3.1
4	MAY	1981	300	124.125000	81.797142	4.522150	0.1	-3.7
4	MAY	1981	323	124.140968	81.797112	4.518738	-0.7	-4.2
4	MAY	1981	400	124.166664	81.796844	4.512156	-2.0	-5.3
4	MAY	1981	405	124.170135	81.796783	4.511129	-2.2	-5.5
4	MAY	1981	500	124.208336	81.795822	4.497230	-4.2	-7.9
4	MAY	1981	511	124.215973	81.795563	4.493842	-4.6	-8.4
4	MAY	1981	553	124.245140	81.794403	4.479187	-5.5	-10.0
4	MAY	1981	600	124.250000	81.794189	4.476530	-5.6	-10.1
4	MAY	1981	624	124.266663	81.793442	4.467086	-6.0	-10.6
4	MAY	1981	659	124.290977	81.792221	4.452790	-7.1	-10.9
4	MAY	1981	700	124.291664	81.792183	4.452379	-7.1	-10.9
4	MAY	1981	800	124.333336	81.789497	4.428203	-9.3	-10.2
4	MAY	1981	811	124.340973	81.788933	4.424017	-9.6	-10.0
4	MAY	1981	847	124.365974	81.787041	4.410832	-9.4	-9.6
4	MAY	1981	900	124.375000	81.786392	4.406116	-8.9	-9.7
4	MAY	1981	924	124.391663	81.785324	4.397291	-7.5	-9.9

# FRAM 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
4	MAY	1981	1000	124.416664	81.784126	4.383676	-4.8	-10.1
4	MAY	1981	1035	124.440971	81.783432	4.370444	-2.6	-9.8
4	MAY	1981	1100	124.458336	81.783157	4.361411	-1.6	-9.3
4	MAY	1981	1148	124.491669	81.782875	4.345552	-0.8	-8.2
4	MAY	1981	1200	124.500000	81.782822	4.341909	-0.8	-7.9
4	MAY	1981	1259	124.540977	81.782707	4.325907	0.4	-6.5
4	MAY	1981	1300	124.541664	81.782707	4.325665	0.5	-6.4
4	MAY	1981	1400	124.583336	81.783096	4.312499	1.5	-5.3
4	MAY	1981	1409	124.589577	81.783165	4.310707	1.5	-5.2
4	MAY	1981	1445	124.614586	81.783417	4.303709	1.0	-5.2
4	MAY	1981	1500	124.625000	81.783493	4.300719	0.8	-5.4
4	MAY	1981	1556	124.663887	81.783501	4.288027	-0.9	-6.9
4	MAY	1981	1600	124.666664	81.783485	4.286974	-1.0	-7.1
4	MAY	1981	1630	124.687500	81.783226	4.278332	-2.1	-8.2
4	MAY	1981	1700	124.708336	81.782814	4.268487	-3.0	-9.2
4	MAY	1981	1742	124.737495	81.781975	4.252901	-4.4	-10.4
4	MAY	1981	1800	124.750000	81.781517	4.245667	-5.0	-10.9
4	MAY	1981	1816	124.761108	81.781059	4.239016	-5.6	-11.2
4	MAY	1981	1900	124.791664	81.779579	4.220139	-6.7	-11.4
4	MAY	1981	1927	124.810417	81.778587	4.208684	-6.8	-11.1
4	MAY	1981	2000	124.833336	81.777382	4.195244	-6.6	-10.5
4	MAY	1981	2100	124.875000	81.775360	4.173234	-5.8	-8.9
4	MAY	1981	2113	124.884026	81.774956	4.168982	-5.6	-8.5
4	MAY	1981	2200	124.916664	81.773621	4.155222	-4.8	-7.1
4	MAY	1981	2259	124.957642	81.772285	4.141541	-3.4	-5.1
4	MAY	1981	2300	124.958336	81.772270	4.141348	-3.4	-5.1
4	MAY	1981	2336	124.983337	81.771698	4.135444	-2.4	-3.5
5	MAY	1981	0	125.000000	81.771431	4.132780	-1.7	-2.4
5	MAY	1981	100	125.041664	81.771126	4.130120	-0.1	-0.3
5	MAY	1981	124	125.058327	81.771149	4.130002	0.5	0.0
5	MAY	1981	200	125.083336	81.771301	4.130140	1.0	0.1
5	MAY	1981	233	125.106255	81.771484	4.130026	1.0	-0.3
5	MAY	1981	300	125.125000	81.771606	4.129457	0.7	-0.8
5	MAY	1981	312	125.133331	81.771645	4.129035	0.5	-1.1
5	MAY	1981	400	125.166664	81.771629	4.126096	-0.6	-2.3
5	MAY	1981	421	125.181252	81.771530	4.124007	-1.2	-3.0
5	MAY	1981	500	125.208336	81.771187	4.118344	-2.0	-4.9
5	MAY	1981	500	125.208336	81.771187	4.116344	-2.0	-4.9
5	MAY	1981	600	125.250000	81.770317	4.103644	-3.5	-8.1
5	MAY	1981	609	125.256248	81.770134	4.100836	-3.8	-8.5
5	MAY	1981	648	125.283333	81.769211	4.087219	-4.9	-9.9
5	MAY	1981	700	125.291664	81.768863	4.082711	-5.2	-10.1
5	MAY	1981	721	125.306252	81.768265	4.074593	-5.7	-10.4
5	MAY	1981	757	125.331245	81.767044	4.060198	-6.8	-10.8
5	MAY	1981	800	125.333336	81.766937	4.058973	-6.9	-10.9
5	MAY	1981	900	125.375000	81.764488	4.034186	-8.0	-10.9
5	MAY	1981	945	125.406250	81.762573	4.016227	-7.5	-10.2
5	MAY	1981	1000	125.416664	81.761986	4.010537	-6.9	-9.9
5	MAY	1981	1000	125.416664	81.761986	4.010537	-6.9	-9.9
5	MAY	1981	1021	125.431252	81.761246	4.002857	-6.1	-9.5
5	MAY	1981	1100	125.458336	81.760178	3.989550	-4.0	-8.6
5	MAY	1981	1200	125.500000	81.759315	3.972344	-1.5	-6.4
5	MAY	1981	1207	125.504860	81.759262	3.970692	-1.3	-6.1
5	MAY	1981	1300	125.541664	81.759056	3.961075	-0.2	-3.5
5	MAY	1981	1353	125.578468	81.759071	3.956610	0.2	-1.1
5	MAY	1981	1400	125.583336	81.759079	3.956356	0.3	-0.8
5	MAY	1981	1500	125.625000	81.759117	3.955925	-0.3	-0.1
5	MAY	1981	1506	125.629173	81.759102	3.955904	-0.5	-0.1
5	MAY	1981	1538	125.651390	81.758942	3.955375	-1.4	-0.8
5	MAY	1981	1600	125.666664	81.758728	3.954364	-2.2	-1.6
5	MAY	1981	1652	125.702782	81.757889	3.949143	-3.8	-3.8
5	MAY	1981	1700	125.708336	81.757721	3.947944	-4.0	-4.2
5	MAY	1981	1800	125.750000	81.756180	3.935711	-5.4	-6.5
5	MAY	1981	1838	125.776390	81.754990	3.925489	-6.2	-7.8
5	MAY	1981	1900	125.791664	81.754227	3.918804	-6.7	-8.4
5	MAY	1981	1910	125.798615	81.753853	3.915580	-6.9	-8.7
5	MAY	1981	2000	125.833336	81.751864	3.898079	-7.3	-9.7
5	MAY	1981	2024	125.849998	81.750961	3.889241	-7.0	-9.9

FRAM 3 NAVIGATION - KALMAN

UY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
5	MAY	1981	2100	125.875000	81.749695	3.875965	-5.9	-9.7
5	MAY	1981	2200	125.910000	81.748100	3.855747	-3.9	-7.9
5	MAY	1981	2210	125.923015	81.747902	3.852891	-3.6	-7.3
5	MAY	1981	2244	125.947227	81.747330	3.844756	-2.7	-5.3
5	MAY	1981	2300	125.958336	81.747108	3.841900	-2.4	-4.2
6	MAY	1981	0	126.000000	81.746506	3.836289	-1.2	-1.2
6	MAY	1981	31	126.021523	81.746361	3.835396	-0.4	-0.4
6	MAY	1981	100	126.041604	81.746368	3.835190	0.5	0.0
6	MAY	1981	110	126.048015	81.746399	3.835203	0.8	0.1
6	MAY	1981	200	126.083336	81.746803	3.835676	2.1	0.4
6	MAY	1981	219	126.096527	81.747032	3.835971	2.4	0.4
6	MAY	1981	300	126.125000	81.747597	3.836693	2.7	0.5
6	MAY	1981	331	126.146523	81.748032	3.837135	2.5	0.3
6	MAY	1981	400	126.166004	81.748375	3.837192	1.9	-0.2
6	MAY	1981	407	126.171532	81.748444	3.837118	1.7	-0.4
6	MAY	1981	500	126.208336	81.748650	3.837483	-0.4	-2.1
6	MAY	1981	519	126.221527	81.748566	3.832995	-1.3	-3.0
6	MAY	1981	555	126.246529	81.748184	3.827660	-2.5	-4.9
6	MAY	1981	600	126.250000	81.748116	3.826706	-2.6	-5.2
6	MAY	1981	700	126.291004	81.747025	3.811529	-4.0	-8.0
6	MAY	1981	800	126.333336	81.745445	3.792365	-6.0	-8.5
6	MAY	1981	820	126.347221	81.744743	3.786079	-6.9	-8.2
6	MAY	1981	900	126.375000	81.743065	3.774348	-8.6	-7.4
6	MAY	1981	1000	126.416004	81.740074	3.758508	-9.2	-6.9
6	MAY	1981	1008	126.422218	81.739685	3.756433	-9.0	-6.9
6	MAY	1981	1038	126.443054	81.738297	3.748528	-8.0	-7.1
6	MAY	1981	1100	126.458336	81.737411	3.742551	-6.9	-7.3
6	MAY	1981	1115	126.468750	81.736885	3.738399	-6.0	-7.4
6	MAY	1981	1155	126.496529	81.735779	3.727457	-4.3	-7.0
6	MAY	1981	1200	126.500000	81.735664	3.726169	-4.2	-6.8
6	MAY	1981	1300	126.541004	81.734566	3.712633	-2.7	-5.3
6	MAY	1981	1301	126.542358	81.734550	3.712437	-2.6	-5.2
6	MAY	1981	1343	126.571526	81.734047	3.704952	-1.8	-4.3
6	MAY	1981	1400	126.583336	81.733894	3.702325	-1.5	-3.9
6	MAY	1981	1500	126.625000	81.733536	3.694542	-0.9	-3.1
6	MAY	1981	1600	126.666004	81.733170	3.687778	-1.5	-3.1
6	MAY	1981	1700	126.708336	81.732445	3.679933	-3.0	-4.0
6	MAY	1981	1800	126.750000	81.731216	3.669036	-4.5	-5.7
6	MAY	1981	1818	126.762505	81.730766	3.664964	-4.8	-6.3
6	MAY	1981	1900	126.791004	81.729645	3.653988	-5.0	-7.6
6	MAY	1981	1903	126.793755	81.729568	3.653133	-4.9	-7.6
6	MAY	1981	1935	126.815971	81.728729	3.643589	-4.7	-8.2
6	MAY	1981	2000	126.833336	81.728111	3.635844	-4.4	-8.3
6	MAY	1981	2100	126.875000	81.726814	3.617317	-3.5	-8.1
6	MAY	1981	2200	126.916004	81.725876	3.599740	-2.4	-7.6
6	MAY	1981	2300	126.958336	81.725250	3.583422	-1.6	-6.7
6	MAY	1981	2307	126.963196	81.725182	3.581687	-1.6	-6.5
6	MAY	1981	2339	126.985413	81.724915	3.574471	-1.5	-5.4
7	MAY	1981	0	127.000000	81.724739	3.570570	-1.5	-4.5
7	MAY	1981	100	127.041604	81.724335	3.563878	-0.7	-1.4
7	MAY	1981	120	127.059723	81.724274	3.563095	-0.1	-0.2
7	MAY	1981	200	127.083336	81.724350	3.563602	0.8	0.9
7	MAY	1981	241	127.111809	81.724609	3.565172	1.4	1.0
7	MAY	1981	300	127.125000	81.724762	3.565773	1.5	0.7
7	MAY	1981	314	127.134727	81.724876	3.566095	1.5	0.5
7	MAY	1981	400	127.166004	81.725204	3.566425	1.0	-0.1
7	MAY	1981	429	127.186806	81.725296	3.566136	0.2	-0.5
7	MAY	1981	500	127.208336	81.725250	3.565319	-0.8	-1.0
7	MAY	1981	502	127.209724	81.725243	3.565242	-0.8	-1.0
7	MAY	1981	600	127.250000	81.724693	3.561425	-2.5	-2.5
7	MAY	1981	617	127.261810	81.724442	3.559657	-2.9	-3.0
7	MAY	1981	650	127.284721	81.723869	3.555435	-3.5	-3.8
7	MAY	1981	700	127.291604	81.723679	3.553987	-3.6	-4.0
7	MAY	1981	729	127.311806	81.723068	3.549397	-4.2	-4.5
7	MAY	1981	800	127.333336	81.722282	3.543811	-5.3	-5.1
7	MAY	1981	805	127.336800	81.722137	3.542640	-5.5	-5.3
7	MAY	1981	900	127.375000	81.720100	3.531060	-8.2	-6.1
7	MAY	1981	918	127.387505	81.719261	3.526933	-9.0	-6.2

# FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
7	MAY	1981	953	127.411804	81.717461	3.518708	-9.8	-0.4
7	MAY	1981	1000	127.416664	81.717087	3.517031	-9.8	-6.4
7	MAY	1981	1023	127.432640	81.715881	3.511426	-9.6	-6.0
7	MAY	1981	1100	127.458336	81.714081	3.501954	-8.2	-7.1
7	MAY	1981	1200	127.500000	81.711838	3.486098	-5.8	-6.7
7	MAY	1981	1209	127.506248	81.711563	3.483881	-5.5	-6.5
7	MAY	1981	1254	127.537498	81.710335	3.474120	-4.8	-5.0
7	MAY	1981	1300	127.541664	81.710182	3.473022	-4.7	-4.8
7	MAY	1981	1355	127.579865	81.708870	3.465312	-3.9	-2.8
7	MAY	1981	1400	127.583336	81.708763	3.464798	-3.7	-2.7
7	MAY	1981	1500	127.625000	81.707779	3.460098	-2.4	-1.8
7	MAY	1981	1514	127.634727	81.707603	3.459127	-2.2	-1.9
7	MAY	1981	1540	127.652779	81.707314	3.457254	-1.9	-2.0
7	MAY	1981	1600	127.666664	81.707115	3.455716	-1.8	-2.1
7	MAY	1981	1700	127.708336	81.706528	3.449847	-2.1	-3.3
7	MAY	1981	1700	127.708336	81.706528	3.449847	-2.1	-3.3
7	MAY	1981	1726	127.726387	81.706215	3.446248	-2.4	-4.1
7	MAY	1981	1800	127.750000	81.705734	3.440517	-2.7	-4.9
7	MAY	1981	1846	127.781944	81.705048	3.431038	-2.8	-6.1
7	MAY	1981	1900	127.791884	81.704834	3.427755	-2.9	-6.4
7	MAY	1981	1912	127.799995	81.704643	3.424800	-3.0	-6.7
7	MAY	1981	2000	127.833336	81.703789	3.412049	-3.8	-7.3
7	MAY	1981	2000	127.833336	81.703789	3.412049	-3.8	-7.3
7	MAY	1981	2032	127.855550	81.703079	3.403326	-4.3	-7.3
7	MAY	1981	2100	127.875000	81.702415	3.395585	-4.3	-7.5
7	MAY	1981	2200	127.916664	81.701134	3.378711	-3.5	-7.4
7	MAY	1981	2218	127.929169	81.700813	3.373852	-3.1	-7.1
7	MAY	1981	2246	127.948608	81.700363	3.366851	-2.8	-6.2
7	MAY	1981	2300	127.958336	81.700157	3.363755	-2.8	-5.6
8	MAY	1981	0	128.000000	81.699265	3.354399	-2.7	-2.7
8	MAY	1981	34	128.023605	81.698784	3.352049	-2.5	-1.1
8	MAY	1981	100	128.041672	81.698463	3.351442	-2.1	-0.2
8	MAY	1981	200	128.083328	81.697968	3.352365	-0.9	0.7
8	MAY	1981	222	128.098618	81.697891	3.352879	-0.4	0.6
8	MAY	1981	300	128.125000	81.697899	3.353635	0.3	0.5
8	MAY	1981	339	128.152084	81.698006	3.354423	0.6	0.6
8	MAY	1981	400	128.166672	81.698082	3.354917	0.6	0.7
8	MAY	1981	409	128.172913	81.698105	3.355141	0.6	0.7
8	MAY	1981	500	128.208328	81.698212	3.356499	0.1	0.7
8	MAY	1981	526	128.226395	81.698204	3.357226	-0.3	0.8
8	MAY	1981	557	128.247910	81.698120	3.356119	-0.7	0.8
8	MAY	1981	600	128.250000	81.698105	3.358205	-0.7	0.8
8	MAY	1981	700	128.291672	81.697655	3.359434	-2.3	0.1
8	MAY	1981	715	128.302078	81.697449	3.359411	-2.8	-0.2
8	MAY	1981	800	128.333328	81.696587	3.358134	-4.1	-1.4
8	MAY	1981	822	128.348618	81.696068	3.356752	-4.6	-2.0
8	MAY	1981	900	128.375000	81.695053	3.353340	-5.3	-2.7
8	MAY	1981	903	128.377090	81.694962	3.353033	-5.4	-2.8
8	MAY	1981	1000	128.416672	81.693092	3.346440	-6.7	-3.4
8	MAY	1981	1007	128.421524	81.692841	3.345533	-6.8	-3.5
8	MAY	1981	1050	128.451385	81.691193	3.339616	-7.2	-3.8
8	MAY	1981	1100	128.458328	81.690804	3.338200	-7.1	-3.8
8	MAY	1981	1117	128.470139	81.690155	3.335778	-7.0	-3.8
8	MAY	1981	1152	128.494446	81.688889	3.330692	-6.4	-3.9
8	MAY	1981	1200	128.500000	81.688614	3.329512	-5.2	-4.0
8	MAY	1981	1300	128.541672	81.686836	3.321316	-4.8	-3.0
8	MAY	1981	1303	128.543747	81.686760	3.320986	-4.7	-2.9
8	MAY	1981	1336	128.566666	81.685982	3.318099	-4.1	-1.8
8	MAY	1981	1400	128.583328	81.685471	3.316778	-3.7	-1.7
8	MAY	1981	1424	128.599991	81.685013	3.315958	-3.4	-1.7
8	MAY	1981	1500	128.625000	81.684380	3.315275	-3.0	-0.7
8	MAY	1981	1600	128.666672	81.683563	3.314149	-1.9	-0.7
8	MAY	1981	1634	128.690277	81.683296	3.312942	-1.1	-1.1
8	MAY	1981	1700	128.708328	81.683189	3.311709	-0.5	-1.4
8	MAY	1981	1725	128.725693	81.683151	3.310334	-0.1	-1.6
8	MAY	1981	1756	128.747223	81.683167	3.308433	0.2	-1.7
8	MAY	1981	1800	128.750000	81.683167	3.308172	0.2	-1.8
8	MAY	1981	1820	128.763885	81.683182	3.306611	0.2	-1.9

# FRAM 3 NAVIGATION - KALMAN

DAY	MONTH	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
01	MAY	1981	1900	128.791672	81.683220	3.303729	0.2	-2.3
02	MAY	1981	1942	128.820831	81.683296	3.299715	0.5	-2.9
03	MAY	1981	2000	128.833328	81.683357	3.297660	0.7	-3.2
04	MAY	1981	2037	128.859024	81.683525	3.292770	0.9	-3.8
05	MAY	1981	2100	128.875000	81.683632	3.289366	0.8	-4.1
06	MAY	1981	2128	128.894440	81.683731	3.285062	0.5	-4.1
07	MAY	1981	2200	128.916672	81.683784	3.280539	0.0	-3.4
08	MAY	1981	2224	128.933334	81.683762	3.277801	-0.3	-2.7
09	MAY	1981	2243	128.946518	81.683716	3.276156	-0.5	-2.0
10	MAY	1981	2300	128.958328	81.683670	3.275072	-0.5	-1.4
11	MAY	1981	2314	128.968063	81.683640	3.274442	-0.4	-1.0
12	MAY	1981	2341	128.986801	81.683601	3.273841	0.0	-0.2
13	MAY	1981	0	129.000000	81.683617	3.273861	0.3	0.3
14	MAY	1981	10	129.006943	81.683640	3.274014	0.5	0.5
15	MAY	1981	100	129.041672	81.683922	3.276453	1.5	2.2
16	MAY	1981	126	129.061111	81.684196	3.279303	2.1	3.3
17	MAY	1981	156	129.080551	81.684547	3.283279	2.6	4.3
18	MAY	1981	200	129.083328	81.684608	3.283931	2.7	4.4
19	MAY	1981	249	129.117355	81.685432	3.293179	3.5	5.5
20	MAY	1981	300	129.125000	81.685646	3.295455	3.7	5.6
21	MAY	1981	316	129.136108	81.685982	3.298848	4.0	5.8
22	MAY	1981	343	129.154861	81.686584	3.304833	4.3	6.1
23	MAY	1981	400	129.166672	81.686981	3.308779	4.4	6.3
24	MAY	1981	436	129.191666	81.687851	3.317417	4.6	6.5
25	MAY	1981	500	129.208328	81.688461	3.323130	4.7	6.3
26	MAY	1981	504	129.211105	81.688560	3.324067	4.8	6.3
27	MAY	1981	600	129.250000	81.690147	3.335932	6.0	4.8
28	MAY	1981	624	129.266663	81.690979	3.339720	6.9	3.7
29	MAY	1981	652	129.286118	81.692108	3.342801	8.0	2.2
30	MAY	1981	700	129.291672	81.692467	3.343400	8.4	1.8
31	MAY	1981	800	129.333328	81.695457	3.345481	9.7	0.8
32	MAY	1981	813	129.342361	81.696136	3.345921	9.7	1.0
33	MAY	1981	900	129.375000	81.698540	3.348908	9.1	2.5
34	MAY	1981	900	129.375000	81.698540	3.348908	9.1	2.5
35	MAY	1981	926	129.393051	81.699783	3.351785	8.5	3.4
36	MAY	1981	1000	129.416672	81.701271	3.356706	7.7	4.3
37	MAY	1981	1000	129.416672	81.701271	3.356706	7.7	4.3
38	MAY	1981	1025	129.434036	81.702271	3.360949	7.0	4.8
39	MAY	1981	1044	129.447220	81.702965	3.364483	6.6	5.2
40	MAY	1981	1100	129.458328	81.703522	3.367639	6.3	5.4
41	MAY	1981	1114	129.468063	81.703995	3.370516	6.1	5.6
42	MAY	1981	1200	129.500000	81.705421	3.380404	5.3	5.8
43	MAY	1981	1211	129.507645	81.705734	3.382775	5.1	5.7
44	MAY	1981	1228	129.519440	81.706192	3.386365	4.8	5.6
45	MAY	1981	1360	129.541672	81.706970	3.392664	4.2	5.2
46	MAY	1981	1302	129.543000	81.707016	3.393274	4.2	5.2
47	MAY	1981	1357	129.581253	81.708221	3.403346	4.3	4.7
48	MAY	1981	1400	129.583328	81.708290	3.403877	4.3	4.7
49	MAY	1981	1413	129.592361	81.708603	3.406171	4.6	4.7
50	MAY	1981	1500	129.625000	81.709999	3.414579	6.7	4.9
51	MAY	1981	1542	129.654160	81.711830	3.422809	9.5	5.6
52	MAY	1981	1558	129.665268	81.712700	3.426304	10.6	6.0
53	MAY	1981	1600	129.666672	81.712814	3.426759	10.7	6.1
54	MAY	1981	1700	129.708328	81.716766	3.442172	13.0	7.6
55	MAY	1981	1707	129.713196	81.717262	3.444190	13.1	7.8
56	MAY	1981	1728	129.727768	81.718758	3.450481	13.3	8.2
57	MAY	1981	1800	129.750000	81.721092	3.460519	13.6	8.4
58	MAY	1981	1853	129.786804	81.725060	3.476303	14.0	7.1
59	MAY	1981	1900	129.791672	81.725586	3.478120	14.0	6.8
60	MAY	1981	1929	129.811813	81.727783	3.484750	14.0	5.5
61	MAY	1981	2000	129.833328	81.730110	3.490474	13.6	4.5
62	MAY	1981	2008	129.838882	81.730690	3.491791	13.4	4.3
63	MAY	1981	2039	129.860413	81.732860	3.496621	12.7	4.2
64	MAY	1981	2100	129.875000	81.734306	3.500023	12.4	4.5
65	MAY	1981	2115	129.885422	81.735298	3.502671	12.2	4.9
66	MAY	1981	2200	129.916672	81.738281	3.511959	12.4	6.1
67	MAY	1981	2225	129.934036	81.739975	3.517858	12.7	6.5
68	MAY	1981	2248	129.949997	81.741570	3.523461	13.0	6.5

# FRAM 3 NAVIGATION - KALMAN

DAY	MONTH	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
9	MAY	1981	2300	129.958328	81.742424	3.526354	13.2	8.4
10	MAY	1981	0	130.000000	81.746785	3.541001	13.2	7.0
10	MAY	1981	36	130.025009	81.749260	3.551291	12.4	8.3
10	MAY	1981	100	130.041672	81.750832	3.559161	11.8	9.2
10	MAY	1981	159	130.082642	81.754410	3.580586	10.8	9.7
10	MAY	1981	200	130.083328	81.754471	3.580948	10.8	9.7
10	MAY	1981	224	130.099991	81.755859	3.589533	10.7	9.4
10	MAY	1981	300	130.125000	81.757919	3.602214	10.5	9.4
10	MAY	1981	346	130.156937	81.760551	3.616893	10.7	9.9
10	MAY	1981	400	130.166672	81.761368	3.624129	10.8	10.0
10	MAY	1981	412	130.175003	81.762077	3.628667	10.9	10.1
10	MAY	1981	500	130.208328	81.764992	3.646636	11.7	9.5
10	MAY	1981	500	130.208328	81.764992	3.646636	11.7	9.5
10	MAY	1981	534	130.231949	81.767197	3.658135	12.1	8.6
10	MAY	1981	559	130.249313	81.768829	3.665992	12.0	8.1
10	MAY	1981	600	130.250000	81.768890	3.666297	12.0	8.1
10	MAY	1981	648	130.283340	81.771968	3.680548	12.0	7.7
10	MAY	1981	700	130.291672	81.772766	3.684025	12.1	7.7
10	MAY	1981	722	130.306946	81.774223	3.690350	12.3	7.6
10	MAY	1981	800	130.333328	81.776772	3.701198	12.4	7.6
10	MAY	1981	836	130.358337	81.779175	3.711682	12.2	7.8
10	MAY	1981	900	130.375000	81.780731	3.718796	11.9	7.9
10	MAY	1981	910	130.381943	81.781372	3.721758	11.7	7.8
10	MAY	1981	1000	130.416672	81.784439	3.735934	11.0	7.0
10	MAY	1981	1024	130.433334	81.785858	3.741959	10.7	6.3
10	MAY	1981	1058	130.456940	81.787743	3.749474	9.6	5.5
10	MAY	1981	1100	130.458328	81.787849	3.749886	9.7	5.4
10	MAY	1981	1119	130.471527	81.788803	3.753641	8.9	5.1
10	MAY	1981	1200	130.500000	81.790581	3.760978	7.2	4.4
10	MAY	1981	1212	130.508331	81.791039	3.762913	6.8	4.2
10	MAY	1981	1300	130.541672	81.792633	3.769737	5.5	3.4
10	MAY	1981	1400	130.583328	81.794197	3.777539	4.0	3.8
10	MAY	1981	1432	130.605560	81.794823	3.782493	3.1	4.4
10	MAY	1981	1500	130.625000	81.795235	3.787435	2.3	4.9
10	MAY	1981	1600	130.666672	81.795784	3.797682	1.2	3.5
10	MAY	1981	1618	130.679169	81.795891	3.799702	1.1	2.4
10	MAY	1981	1700	130.708328	81.796104	3.801487	0.9	0.2
10	MAY	1981	1800	130.750000	81.796417	3.797144	1.2	3.4
10	MAY	1981	1804	130.752777	81.796448	3.796624	1.2	3.5
10	MAY	1981	1900	130.791672	81.796951	3.787149	2.2	1.5
10	MAY	1981	1950	130.826385	81.797737	3.776185	3.6	1.6
10	MAY	1981	2000	130.833328	81.797935	3.773765	3.9	1.4
10	MAY	1981	2100	130.875000	81.799461	3.758348	5.4	1.7
10	MAY	1981	2200	130.916672	81.801376	3.742091	6.2	1.1
10	MAY	1981	2300	130.958328	81.803368	3.726573	6.0	0.4
10	MAY	1981	2339	130.985413	81.804581	3.717734	5.5	1.5
11	MAY	1981	0	131.000000	81.805199	3.713565	5.3	1.0
11	MAY	1981	100	131.041672	81.806816	3.704588	4.8	1.7
11	MAY	1981	126	131.059723	81.807472	3.702381	4.6	1.7
11	MAY	1981	200	131.083328	81.808304	3.701156	4.3	1.0
11	MAY	1981	256	131.122223	81.809494	3.702960	3.4	1.9
11	MAY	1981	300	131.125000	81.809563	3.703256	3.3	2.0
11	MAY	1981	319	131.138199	81.809891	3.704957	2.9	2.7
11	MAY	1981	400	131.166672	81.810471	3.710270	2.4	4.1
11	MAY	1981	444	131.197220	81.811028	3.718236	2.4	5.4
11	MAY	1981	500	131.208328	81.811249	3.721595	2.6	5.7
11	MAY	1981	506	131.212509	81.811333	3.722411	2.7	5.9
11	MAY	1981	558	131.248611	81.812157	3.735022	3.1	6.2
11	MAY	1981	600	131.250000	81.812187	3.735492	3.2	6.2
11	MAY	1981	632	131.272232	81.812752	3.742804	3.3	5.8
11	MAY	1981	700	131.291672	81.813263	3.748761	3.3	5.4
11	MAY	1981	746	131.323608	81.814026	3.757291	2.6	4.4
11	MAY	1981	800	131.333328	81.814209	3.759575	2.2	4.2
11	MAY	1981	820	131.347214	81.814423	3.762642	1.7	3.9
11	MAY	1981	900	131.375000	81.8164667	3.768540	0.6	3.9
11	MAY	1981	934	131.398605	81.814705	3.773775	-0.2	4.2
11	MAY	1981	1000	131.416672	81.814621	3.777929	-1.0	4.2
11	MAY	1981	1008	131.422226	81.814568	3.779213	-1.3	4.2



# FRAM 3 NAVIGATION - KALMAN

DAY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
11	MAY	1981	1027	131.435410	81.814400	3.782243	-2.1	4.2
11	MAY	1981	1100	131.458328	81.813889	3.787172	-3.7	3.6
11	MAY	1981	1122	131.473818	81.813370	3.789891	-5.0	2.9
11	MAY	1981	1200	131.500000	81.812096	3.793025	-7.4	1.4
11	MAY	1981	1213	131.509018	81.811546	3.793800	-8.2	0.9
11	MAY	1981	1300	131.541072	81.809097	3.794409	-10.9	0.4
11	MAY	1981	1309	131.547913	81.808556	3.794586	-11.4	0.6
11	MAY	1981	1359	131.582642	81.805176	3.796015	-13.4	0.6
11	MAY	1981	1400	131.583328	81.805107	3.796036	-13.4	0.6
11	MAY	1981	1500	131.625000	81.800476	3.794664	-15.0	-2.3
11	MAY	1981	1527	131.643753	81.796256	3.791219	-15.4	-4.4
11	MAY	1981	1544	131.655503	81.796822	3.787935	-15.7	-5.8
11	MAY	1981	1600	131.666672	81.795456	3.784054	-15.9	-7.1
11	MAY	1981	1700	131.708328	81.790359	3.762747	-15.0	-11.7
11	MAY	1981	1730	131.729172	81.786633	3.748173	-13.6	-14.0
11	MAY	1981	1800	131.750000	81.785965	3.731046	-11.8	-16.2
11	MAY	1981	1900	131.791072	81.782829	3.689722	-7.3	-20.1
11	MAY	1981	2000	131.833328	81.781281	3.641281	-2.4	-22.4
11	MAY	1981	2044	131.863892	81.781082	3.603767	0.5	-22.6
11	MAY	1981	2100	131.875000	81.761166	3.590186	1.4	-22.5
11	MAY	1981	2200	131.916672	81.781898	3.541706	2.5	-19.7
11	MAY	1981	2230	131.937500	81.782249	3.520720	1.8	-17.3
11	MAY	1981	2250	131.951385	81.782410	3.508307	1.2	-15.6
11	MAY	1981	2300	131.958328	81.782471	3.502576	0.9	-14.8
12	MAY	1981	0	132.000000	81.782524	3.473401	-0.4	-11.7
12	MAY	1981	17	132.011810	81.782486	3.466019	-0.6	-11.4
12	MAY	1981	38	132.026382	81.782402	3.457161	-0.8	-11.0
12	MAY	1981	100	132.041072	81.782295	3.448172	-1.0	-10.7
12	MAY	1981	200	132.083328	81.781883	3.425186	-1.6	-9.7
12	MAY	1981	204	132.086105	81.781845	3.423736	-1.7	-9.6
12	MAY	1981	226	132.101395	81.781631	3.415930	-2.0	-9.2
12	MAY	1981	300	132.125000	81.781212	3.404604	-2.6	-8.4
12	MAY	1981	354	132.162491	81.780319	3.388859	-3.4	-7.1
12	MAY	1981	400	132.166672	81.780212	3.387270	-3.5	-7.0
12	MAY	1981	414	132.176392	81.779938	3.383678	-3.6	-6.7
12	MAY	1981	500	132.208328	81.779007	3.372829	-3.9	-5.9
12	MAY	1981	542	132.237503	81.778122	3.363919	-3.9	-5.4
12	MAY	1981	600	132.250000	81.777748	3.360366	-3.9	-5.1
12	MAY	1981	601	132.250687	81.777725	3.360173	-3.9	-5.1
12	MAY	1981	656	132.288895	81.776497	3.350126	-4.7	-4.6
12	MAY	1981	700	132.291672	81.776398	3.349433	-4.8	-4.6
12	MAY	1981	730	132.312500	81.775543	3.344328	-5.7	-4.4
12	MAY	1981	800	132.333328	81.774551	3.339365	-6.5	-4.3
12	MAY	1981	900	132.375000	81.772232	3.329984	-7.6	-3.9
12	MAY	1981	918	132.387497	81.771484	3.327397	-7.8	-3.7
12	MAY	1981	1000	132.410672	81.769653	3.321751	-8.5	-3.5
12	MAY	1981	1032	132.438889	81.768112	3.317664	-9.4	-3.3
12	MAY	1981	1100	132.458328	81.766624	3.314408	-10.3	-2.8
12	MAY	1981	1106	132.462509	81.766289	3.313787	-10.5	-2.7
12	MAY	1981	1200	132.500000	81.762970	3.309915	-12.3	-1.0
12	MAY	1981	1220	132.513865	81.761604	3.309388	-13.0	-0.4
12	MAY	1981	1300	132.541672	81.758675	3.309600	-14.0	0.5
12	MAY	1981	1400	132.583328	81.754013	3.310833	-14.4	0.2
12	MAY	1981	1440	132.611115	81.750931	3.310444	-14.1	-0.7
12	MAY	1981	1500	132.625000	81.749405	3.309738	-14.2	-1.1
12	MAY	1981	1600	132.666672	81.744514	3.306486	-16.7	-1.5
12	MAY	1981	1626	132.684723	81.742020	3.305122	-18.9	-1.4
12	MAY	1981	1638	132.693054	81.740761	3.304500	-19.9	-1.4
12	MAY	1981	1700	132.708328	81.738297	3.303243	-21.5	-1.7
12	MAY	1981	1740	132.730115	81.733444	3.299606	-22.8	-3.4
12	MAY	1981	1800	132.750000	81.730988	3.296603	-22.7	-4.6
12	MAY	1981	1812	132.758331	81.729523	3.294377	-22.5	-5.3
12	MAY	1981	1900	132.791672	81.723877	3.282957	-20.6	-7.1
12	MAY	1981	1926	132.809723	81.721085	3.275797	-19.0	-7.5
12	MAY	1981	1957	132.831253	81.718033	3.266880	-17.5	-7.8
12	MAY	1981	2000	132.833328	81.717751	3.266005	-17.4	-7.8
12	MAY	1981	2100	132.875000	81.712395	3.248171	-16.0	-8.2
12	MAY	1981	2143	132.904861	81.708733	3.234785	-15.4	-8.5

FRAM 3 NAVIGATION - KALMAN

DT	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
12	MAY	1981	2200	132.918872	81.707336	3.229385	-15.0	-8.5
12	MAY	1981	2258	132.958940	81.702919	3.212112	-13.2	-6.9
12	MAY	1981	2300	132.958328	81.702774	3.211603	-13.1	-6.7
12	MAY	1981	2345	132.989578	81.699877	3.202598	-12.9	-3.9
13	MAY	1981	0	133.000000	81.698616	3.200688	-13.3	-3.0
13	MAY	1981	100	133.041672	81.694092	3.196733	-14.4	-1.2
13	MAY	1981	133	133.064590	81.691498	3.195047	-14.6	-1.6
13	MAY	1981	200	133.083328	81.689354	3.193323	-14.7	-1.8
13	MAY	1981	300	133.125000	81.684479	3.190219	-15.4	-0.3
13	MAY	1981	304	133.127777	81.684143	3.190194	-15.5	-0.1
13	MAY	1981	321	133.139587	81.682701	3.190480	-15.8	1.0
13	MAY	1981	400	133.168872	81.679314	3.193471	-16.3	3.1
13	MAY	1981	452	133.202774	81.674721	3.201595	-16.3	5.1
13	MAY	1981	500	133.208328	81.674019	3.203141	-16.3	5.3
13	MAY	1981	508	133.213882	81.673317	3.204750	-16.2	5.5
13	MAY	1981	600	133.250000	81.668831	3.216480	-15.6	8.5
13	MAY	1981	640	133.277780	81.665543	3.226301	-14.9	8.6
13	MAY	1981	700	133.291672	81.663956	3.231209	-14.5	8.8
13	MAY	1981	800	133.333328	81.659386	3.245204	-13.6	5.9
13	MAY	1981	828	133.352768	81.657349	3.251054	-13.3	5.4

### Floe Rotation and Magnetic Declination

Measurements of wind direction are referenced to the ice floe and since it rotates, a record of this rotation is needed. Current directions are referenced to magnetic north and magnetic declination is needed to convert them to true directions. Markers positioned on the ice floe determined an arbitrary reference camp azimuth. Bearings of the camp azimuth relative to True North were determined using sun shots.

Magnetic declinations were obtained using a K & E surveyor's compass placed in line with the markers defining the reference camp azimuth. The difference between the True North bearing of the camp azimuth and magnetic north reading from the surveyor's compass is defined as the magnetic declination. Error estimates for magnetic declination are  $\pm 0.5$  degrees.

#### Key to column headings:

True Azimuth	Decimal degrees clockwise from True North
Magnetic Declination	Decimal degrees with positive values indicating west declinations

# FRAM III AZIMUTH AND MAGNETIC DECLINATION

<u>Date</u>		<u>GMT</u>	<u>AZIMUTH (°T)</u>	<u>COMPASS READING</u>	<u>MAGNETIC DECLINATION</u>
April 05	1981	1302	305.4		
06		1137	306.2		
07		1034	306.9		
08		0924	307.4	44.5	-8.1
09		1411	307.3		
10		1158	306.7		
11		0940	306.9	44.0	-9.1
12		1222	306.5	44.5	-9.0
13		1049	305.9	45.0	-9.1
14		1239	306.3	44.0	-9.7
15		1003	306.3	44.5	-9.5
16		1317	306.3	44.0	-9.7
17		1454	306.3	44.0	-9.7
18		1454	305.7	45.0	-9.3
19		1313	305.5	44.5	-10.0
20		1432	303.7	46.0	-10.3
21		1421	303.5	45.5	-11.0
22		1403	303.2		
23		1204	301.6	48.0	-10.4
24		1600		47.3	
26		1103	300.4	49.5	-10.1
27		1242	300.7	49.9	-9.4
28		1147	300.0	50.4	-9.6
28		1326	299.9	50.4	-9.7
28		1610	299.0	50.5	-10.5

<u>Date</u>		<u>GMT</u>	<u>AZIMUTH (°T)</u>	<u>COMPASS READING</u>	<u>MAGNETIC DECLINATION</u>
April 29	1981	1421	299.0	51.0	-10.0
30		1246	299.4	51.2	-9.4
May 01		1039	298.3	52.8	-8.9
02		1555	296.8	53.5	-9.7
03		1328	295.6	54.5	-9.9
04		1215	295.7	53.5	-10.8
05		1347	296.3	52.0	-11.7
06		1003	295.8	52.5	-11.7
07		1154	296.1	52.5	-11.4
08		1036	296.3	52.5	-11.2

### Depth Soundings

A continuous record of ocean depths was made with an echo sounder operating at a frequency of 12 kHz. The Edo sounder system consisted of three units: Model D-100 transducer, Model 248E sonar transceiver and Model 550A graphic recorder. The transducer was suspended through an open hydrographic well at a depth of 4 m below sea level. Reported depths in the table are referenced to the transducer. Depths for this report were scaled at hourly intervals from the chart records on which 19" represented a depth change of 1500 m. The actual physical measurement is two-way reflection time from the transducer to the bottom and return. The uncorrected depth is defined as the one-way reflection time multiplied by the nominal speed of sound in seawater, 1500 m/sec. More precise depth determination requires a correction for the sound speed profile in particular geographic areas of the ocean. The corrected depths listed here are based on tables by Matthews (1939).

At the time soundings commenced, Fram III was over the lower flanks of the Yermak Plateau. It then drifted out over an abyssal plain deeper than 4 km with a maximum recorded depth of 4,028 m. Subsequent drift carried the station back across the flank of the Yermak Plateau and then over its nearly level upper surface at about 800 m with a minimum recorded depth of 765 m. The top of the Yermak Plateau is marked by small-scale roughness.

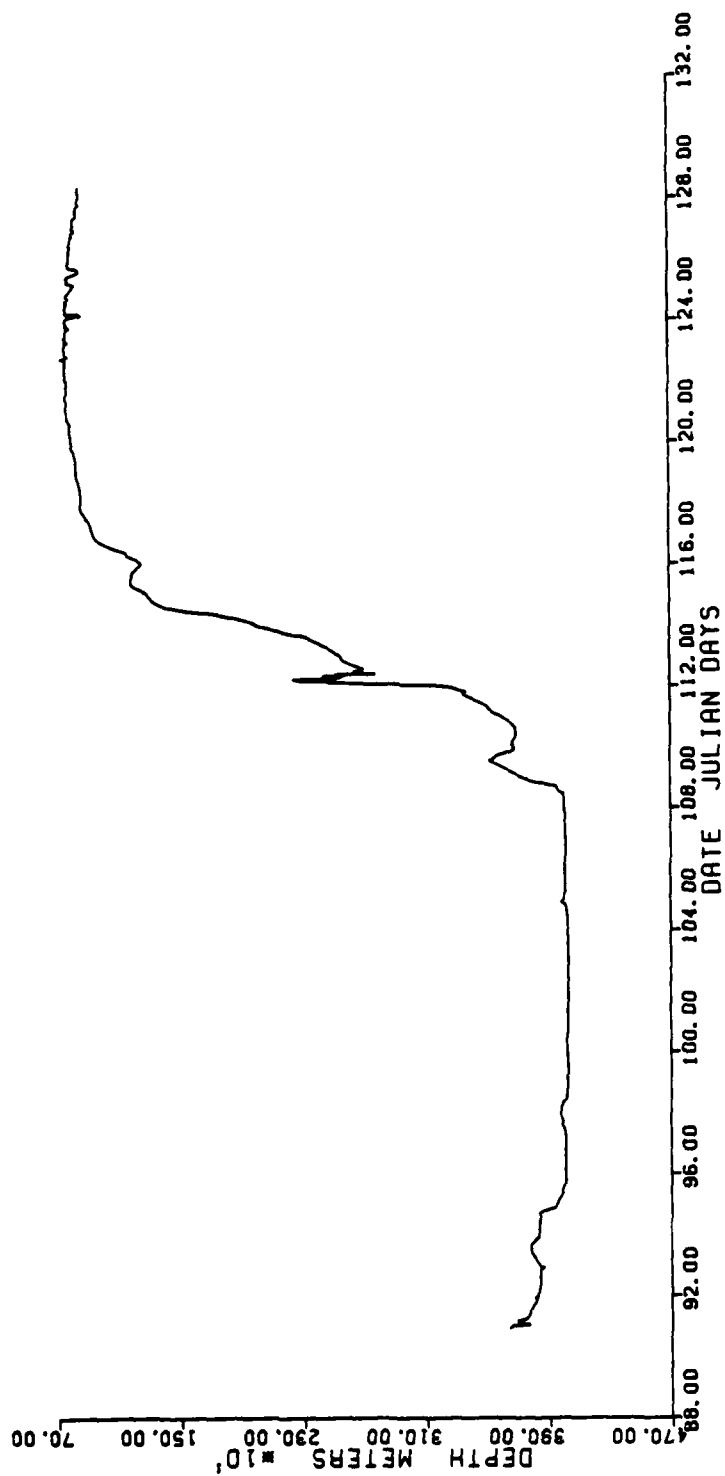


Figure 4 - Ocean depth profile along drift track of Fram III.

# OCEAN DEPTHS AT FRAM III

## Key to column headings:

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich Mean Time
SECONDS	Two-way reflection time
METERS (UNCORR)	Uncorrected depth based on sound speed of $1500 \text{ m s}^{-1}$
VEL (CORR)	Depth correction for sound speed in Arctic waters (Matthews, 1939)
METERS (CORR)	Corrected depths = METERS (UNCORR) + VEL (CORR)



# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	V.L CORR	METERS (CORR)
31	MAR	1981	2300	4.930	3697.5	-60	3637.5
1	APR	1981	0	4.950	3712.5	-60	3652.5
1	APR	1981	100	4.955	3716.3	-60	3656.3
1	APR	1981	200	4.978	3733.5	-60	3673.5
1	APR	1981	300	4.997	3747.8	-60	3687.8
1	APR	1981	400	5.007	3755.3	-60	3695.3
1	APR	1981	500	5.032	3774.0	-60	3684.0
1	APR	1981	600	5.050	3787.5	-60	3727.5
1	APR	1981	700	5.080	3810.0	-60	3750.0
1	APR	1981	800	5.089	3816.8	-60	3756.8
1	APR	1981	900	5.100	3825.0	-60	3765.0
1	APR	1981	1000	5.101	3825.8	-60	3765.8
1	APR	1981	1100	5.105	3828.8	-60	3768.8
1	APR	1981	1200	5.110	3832.5	-60	3772.5
1	APR	1981	1300	5.115	3836.3	-60	3776.3
1	APR	1981	1400	5.119	3839.3	-60	3779.3
1	APR	1981	1500	5.129	3846.8	-60	3786.8
1	APR	1981	1600	5.135	3851.3	-59	3792.3
1	APR	1981	1700	5.141	3855.8	-59	3796.8
1	APR	1981	1800	5.147	3860.3	-59	3801.3
1	APR	1981	1900	5.153	3864.8	-59	3805.8
1	APR	1981	2000	5.159	3869.3	-59	3810.3
1	APR	1981	2100	5.163	3872.3	-59	3813.3
1	APR	1981	2200	5.169	3876.8	-59	3817.8
1	APR	1981	2300	5.173	3879.8	-59	3820.8
2	APR	1981	0	5.177	3882.8	-59	3823.8
2	APR	1981	100	5.179	3884.3	-59	3825.3
2	APR	1981	200	5.181	3885.8	-59	3826.8
2	APR	1981	300	5.183	3887.3	-59	3828.3
2	APR	1981	400	5.185	3888.8	-59	3829.8
2	APR	1981	500	5.187	3890.3	-59	3831.3
2	APR	1981	600	5.189	3891.8	-59	3832.8
2	APR	1981	700	5.191	3893.3	-59	3834.3
2	APR	1981	800	5.193	3894.8	-59	3835.8
2	APR	1981	900	5.196	3897.0	-59	3838.0
2	APR	1981	1000	5.198	3898.5	-59	3839.5
2	APR	1981	1100	5.198	3898.5	-59	3839.5
2	APR	1981	1200	5.198	3898.5	-59	3839.5
2	APR	1981	1300	5.198	3898.5	-59	3839.5
2	APR	1981	1400	5.198	3898.5	-59	3839.5
2	APR	1981	1500	5.198	3898.5	-59	3839.5
2	APR	1981	1600	5.199	3899.3	-59	3840.3
2	APR	1981	1700	5.200	3900.0	-59	3841.0
2	APR	1981	1800	5.201	3900.8	-59	3841.8
2	APR	1981	1900	5.202	3901.5	-59	3842.5
2	APR	1981	2000	5.204	3903.0	-59	3844.0
2	APR	1981	2100	5.204	3903.0	-59	3844.0
2	APR	1981	2200	5.202	3901.5	-59	3842.5
2	APR	1981	2300	5.200	3900.3	-59	3841.3
3	APR	1981	0	5.196	3897.0	-59	3838.0
3	APR	1981	100	5.190	3892.5	-59	3833.5
3	APR	1981	200	5.184	3888.0	-59	3829.0
3	APR	1981	300	5.175	3881.3	-59	3822.3
3	APR	1981	400	5.170	3877.5	-59	3818.5
3	APR	1981	500	5.162	3871.5	-59	3812.5
3	APR	1981	600	5.160	3870.0	-59	3811.0
3	APR	1981	700	5.148	3861.0	-59	3802.0
3	APR	1981	800	5.138	3853.5	-59	3794.5
3	APR	1981	900	5.130	3847.5	-60	3787.5
3	APR	1981	1000	5.122	3841.5	-60	3781.5
3	APR	1981	1100	5.121	3840.8	-60	3780.8
3	APR	1981	1200	5.118	3838.5	-60	3778.5
3	APR	1981	1300	5.118	3838.5	-60	3778.5
3	APR	1981	1400	5.119	3839.3	-60	3779.3
3	APR	1981	1500	5.119	3839.3	-60	3779.3
3	APR	1981	1600	5.117	3837.8	-60	3777.8
3	APR	1981	1700	5.119	3839.3	-60	3779.3
3	APR	1981	1800	5.129	3846.8	-60	3786.8

# FRAM 3 DEPTH DATA

DI	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
3	APR	1981	1900	5.140	3855.0	-59	3796.0
3	APR	1981	2000	5.153	3864.8	-59	3805.8
3	APR	1981	2100	5.161	3870.8	-59	3811.8
3	APR	1981	2200	5.175	3881.3	-59	3822.3
3	APR	1981	2300	5.188	3891.0	-59	3832.0
4	APR	1981	0	5.189	3891.8	-59	3832.8
4	APR	1981	100	5.190	3892.5	-59	3833.5
4	APR	1981	200	5.191	3893.3	-59	3834.3
4	APR	1981	300	5.192	3894.0	-59	3835.0
4	APR	1981	400	5.193	3894.8	-59	3835.8
4	APR	1981	550	5.194	3895.5	-59	3836.5
4	APR	1981	600	5.195	3896.3	-59	3837.3
4	APR	1981	700	5.196	3897.0	-59	3838.0
4	APR	1981	800	5.197	3897.8	-59	3838.8
4	APR	1981	900	5.198	3898.5	-59	3839.5
4	APR	1981	1000	5.199	3899.3	-59	3840.3
4	APR	1981	1100	5.200	3900.0	-59	3841.0
4	APR	1981	1200	5.199	3899.3	-59	3840.3
4	APR	1981	1300	5.198	3898.5	-59	3839.5
4	APR	1981	1400	5.196	3897.0	-59	3838.0
4	APR	1981	1500	5.198	3898.5	-59	3839.5
4	APR	1981	1600	5.197	3897.8	-59	3838.8
4	APR	1981	1700	5.188	3891.0	-59	3832.0
4	APR	1981	1800	5.184	3888.0	-59	3829.0
4	APR	1981	1900	5.207	3905.3	-59	3846.3
4	APR	1981	2000	5.229	3921.8	-59	3862.8
4	APR	1981	2100	5.280	3960.0	-58	3902.0
4	APR	1981	2200	5.320	3990.0	-58	3932.0
4	APR	1981	2300	5.331	3998.3	-58	3940.3
5	APR	1981	0	5.339	4004.3	-58	3946.3
5	APR	1981	100	5.342	4006.5	-58	3948.5
5	APR	1981	200	5.352	4014.0	-58	3956.0
5	APR	1981	300	5.353	4014.8	-58	3956.8
5	APR	1981	400	5.358	4018.5	-58	3960.5
5	APR	1981	500	5.363	4022.3	-58	3964.3
5	APR	1981	600	5.370	4027.5	-58	3969.5
5	APR	1981	700	5.378	4033.5	-58	3975.5
5	APR	1981	800	5.385	4038.8	-58	3980.8
5	APR	1981	900	5.391	4043.3	-58	3985.3
5	APR	1981	1000	5.398	4048.5	-58	3990.5
5	APR	1981	1100	5.390	4042.5	-58	3984.5
5	APR	1981	1200	5.390	4042.5	-58	3984.5
5	APR	1981	1300	5.395	4046.3	-58	3988.3
5	APR	1981	1400	5.400	4050.0	-58	3992.0
5	APR	1981	1500	5.405	4053.8	-58	3995.8
5	APR	1981	1600	5.411	4058.3	-58	4000.3
5	APR	1981	1700	5.416	4062.0	-58	4004.0
5	APR	1981	1800	5.418	4063.5	-58	4005.5
5	APR	1981	1900	5.418	4063.5	-58	4005.5
5	APR	1981	2000	5.420	4065.0	-58	4007.0
5	APR	1981	2100	5.419	4064.3	-58	4006.3
5	APR	1981	2200	5.418	4063.5	-58	4005.5
5	APR	1981	2300	5.417	4062.8	-58	4004.8
6	APR	1981	0	5.419	4064.3	-58	4006.3
6	APR	1981	100	5.419	4064.3	-58	4006.3
6	APR	1981	200	5.419	4064.3	-58	4006.3
6	APR	1981	300	5.419	4064.3	-58	4006.3
6	APR	1981	400	5.419	4064.3	-58	4006.3
6	APR	1981	500	5.419	4064.3	-58	4006.3
6	APR	1981	600	5.419	4064.3	-58	4006.3
6	APR	1981	700	5.420	4065.0	-58	4007.0
6	APR	1981	800	5.420	4065.0	-58	4007.0
6	APR	1981	900	5.420	4065.0	-58	4007.0
6	APR	1981	1000	5.420	4065.0	-58	4007.0
6	APR	1981	1100	5.420	4065.0	-58	4007.0
6	APR	1981	1200	5.420	4065.0	-58	4007.0
6	APR	1981	1300	5.421	4065.8	-58	4007.8
6	APR	1981	1400	5.421	4065.8	-58	4007.8

# FRAM 3 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
6	APR	1981	1500	5.421	4065.8	-58	4007.8
6	APR	1981	1600	5.421	4065.8	-58	4007.8
6	APR	1981	1700	5.420	4065.0	-58	4007.0
6	APR	1981	1800	5.420	4065.0	-58	4007.0
6	APR	1981	1900	5.420	4065.0	-58	4007.0
6	APR	1981	2000	5.420	4065.0	-58	4007.0
6	APR	1981	2100	5.420	4065.0	-58	4007.0
6	APR	1981	2200	5.420	4065.0	-58	4007.0
6	APR	1981	2300	5.419	4064.3	-58	4006.3
7	APR	1981	0	5.419	4064.3	-58	4006.3
7	APR	1981	100	5.420	4065.0	-58	4007.0
7	APR	1981	200	5.420	4065.0	-58	4007.0
7	APR	1981	300	5.419	4064.3	-58	4006.3
7	APR	1981	400	5.419	4064.3	-58	4006.3
7	APR	1981	500	5.420	4065.0	-58	4007.0
7	APR	1981	600	5.420	4065.0	-58	4007.0
7	APR	1981	700	5.419	4064.3	-58	4006.3
7	APR	1981	800	5.419	4064.3	-58	4006.3
7	APR	1981	900	5.416	4062.0	-58	4004.0
7	APR	1981	1000	5.416	4062.0	-58	4004.0
7	APR	1981	1100	5.413	4059.8	-58	4001.8
7	APR	1981	1200	5.410	4057.5	-58	3999.5
7	APR	1981	1300	5.408	4056.0	-58	3998.0
7	APR	1981	1400	5.398	4048.5	-58	3990.5
7	APR	1981	1500	5.393	4044.8	-58	3986.8
7	APR	1981	1600	5.390	4042.5	-58	3984.5
7	APR	1981	1700	5.400	4050.0	-58	3992.0
7	APR	1981	1800	5.400	4050.0	-58	3992.0
7	APR	1981	1900	5.398	4047.0	-58	3989.0
7	APR	1981	2000	5.392	4044.0	-58	3986.0
7	APR	1981	2100	5.390	4042.5	-58	3984.5
7	APR	1981	2200	5.385	4038.8	-58	3980.8
7	APR	1981	2300	5.381	4035.8	-58	3977.8
8	APR	1981	0	5.380	4035.0	-58	3977.0
8	APR	1981	100	5.380	4035.0	-58	3977.0
8	APR	1981	200	5.380	4035.0	-58	3977.0
8	APR	1981	300	5.380	4035.0	-58	3977.0
8	APR	1981	400	5.383	4037.3	-58	3979.3
8	APR	1981	500	5.385	4038.8	-58	3980.8
8	APR	1981	600	5.386	4039.5	-58	3981.5
8	APR	1981	700	5.390	4042.5	-58	3984.5
8	APR	1981	800	5.398	4048.5	-58	3990.5
8	APR	1981	900	5.398	4048.5	-58	3990.5
8	APR	1981	1000	5.410	4057.5	-58	3999.5
8	APR	1981	1100	5.422	4066.5	-58	4006.5
8	APR	1981	1200	5.425	4068.8	-58	4010.8
8	APR	1981	1300	5.429	4071.8	-58	4013.8
8	APR	1981	1400	5.427	4070.3	-58	4012.3
8	APR	1981	1500	5.430	4072.5	-58	4014.5
8	APR	1981	1600	5.431	4073.3	-58	4015.3
8	APR	1981	1700	5.431	4073.3	-58	4015.3
8	APR	1981	1800	5.432	4074.0	-58	4016.0
8	APR	1981	1900	5.435	4076.3	-58	4018.3
8	APR	1981	2000	5.437	4077.8	-58	4019.8
8	APR	1981	2100	5.440	4080.0	-58	4022.0
8	APR	1981	2200	5.440	4080.0	-58	4022.0
8	APR	1981	2300	5.440	4080.0	-58	4022.0
9	APR	1981	0	5.440	4080.0	-58	4022.0
9	APR	1981	100	5.440	4080.0	-58	4022.0
9	APR	1981	200	5.440	4080.0	-58	4022.0
9	APR	1981	300	5.440	4080.0	-58	4022.0
9	APR	1981	400	5.441	4080.8	-58	4022.8
9	APR	1981	500	5.441	4080.8	-58	4022.8
9	APR	1981	600	5.441	4080.8	-58	4022.8
9	APR	1981	700	5.441	4080.8	-58	4022.8
9	APR	1981	800	5.442	4081.5	-58	4023.5
9	APR	1981	900	5.442	4081.5	-58	4023.5
9	APR	1981	1000	5.442	4081.5	-58	4023.5

# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
9	APR	1981	1100	5.443	4082.3	-58	4024.3
9	APR	1981	1200	5.443	4082.3	-58	4024.3
9	APR	1981	1300	5.442	4081.5	-58	4023.5
9	APR	1981	1400	5.441	4080.8	-58	4022.8
9	APR	1981	1500	5.440	4080.0	-58	4022.0
9	APR	1981	1600	5.440	4080.0	-58	4022.0
9	APR	1981	1700	5.440	4080.0	-58	4022.0
9	APR	1981	1800	5.440	4080.0	-58	4022.0
9	APR	1981	1900	5.440	4080.0	-58	4022.0
9	APR	1981	2000	5.440	4080.0	-58	4022.0
9	APR	1981	2100	5.440	4080.0	-58	4022.0
9	APR	1981	2200	5.439	4079.3	-58	4021.3
9	APR	1981	2300	5.439	4079.3	-58	4021.3
10	APR	1981	0	5.438	4078.5	-58	4020.5
10	APR	1981	100	5.438	4078.5	-58	4020.5
10	APR	1981	200	5.437	4077.8	-58	4019.8
10	APR	1981	300	5.437	4077.8	-58	4019.8
10	APR	1981	400	5.436	4077.0	-58	4019.0
10	APR	1981	500	5.436	4077.0	-58	4019.0
10	APR	1981	600	5.435	4076.3	-58	4018.3
10	APR	1981	700	5.435	4076.3	-58	4018.3
10	APR	1981	800	5.434	4075.5	-58	4017.5
10	APR	1981	900	5.433	4074.8	-58	4016.8
10	APR	1981	1000	5.433	4074.8	-58	4016.8
10	APR	1981	1100	5.432	4074.0	-58	4016.0
10	APR	1981	1200	5.432	4074.0	-58	4016.0
10	APR	1981	1300	5.434	4075.5	-58	4017.5
10	APR	1981	1400	5.433	4074.8	-58	4016.8
10	APR	1981	1500	5.437	4077.8	-58	4019.8
10	APR	1981	1600	5.440	4080.0	-58	4022.0
10	APR	1981	1700	5.443	4082.3	-58	4024.3
10	APR	1981	1800	5.443	4082.3	-58	4024.3
10	APR	1981	1900	5.443	4082.3	-58	4024.3
10	APR	1981	2000	5.442	4081.5	-58	4023.5
10	APR	1981	2100	5.442	4081.5	-58	4023.5
10	APR	1981	2200	5.442	4081.5	-58	4023.5
10	APR	1981	2300	5.443	4082.3	-58	4024.3
11	APR	1981	0	5.443	4082.3	-58	4024.3
11	APR	1981	100	5.443	4082.3	-58	4024.3
11	APR	1981	200	5.443	4082.3	-58	4024.3
11	APR	1981	300	5.444	4083.0	-58	4025.0
11	APR	1981	400	5.444	4083.0	-58	4025.0
11	APR	1981	500	5.444	4083.0	-58	4025.0
11	APR	1981	600	5.444	4083.0	-58	4025.0
11	APR	1981	700	5.444	4083.0	-58	4025.0
11	APR	1981	800	5.442	4081.5	-58	4023.5
11	APR	1981	900	5.438	4078.5	-58	4020.5
11	APR	1981	1000	5.443	4082.3	-58	4024.3
11	APR	1981	1100	5.448	4086.0	-58	4028.0
11	APR	1981	1200	5.448	4086.0	-58	4028.0
11	APR	1981	1300	5.448	4086.0	-58	4028.0
11	APR	1981	1400	5.448	4086.0	-58	4028.0
11	APR	1981	1500	5.448	4086.0	-58	4028.0
11	APR	1981	1600	5.448	4086.0	-58	4028.0
11	APR	1981	1700	5.449	4086.8	-58	4028.8
11	APR	1981	1800	5.449	4086.8	-58	4028.8
11	APR	1981	1900	5.449	4086.8	-58	4028.8
11	APR	1981	2000	5.450	4087.5	-58	4029.5
11	APR	1981	2100	5.448	4086.0	-58	4028.0
11	APR	1981	2200	5.448	4086.0	-58	4028.0
11	APR	1981	2300	5.448	4086.0	-58	4028.0
12	APR	1981	0	5.448	4086.0	-58	4028.0
12	APR	1981	100	5.449	4086.8	-58	4028.8
12	APR	1981	200	5.448	4086.0	-58	4028.0
12	APR	1981	300	5.447	4085.3	-58	4027.3
12	APR	1981	400	5.448	4086.0	-58	4028.0
12	APR	1981	500	5.449	4086.8	-58	4028.8
12	APR	1981	600	5.449	4086.8	-58	4028.8

# FRAM 3 DEPTH DATA

DY	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
12	APR	1981	700	5.449	4086.8	-58	4028.8
12	APR	1981	800	5.448	4086.0	-58	4028.0
12	APR	1981	900	5.448	4086.0	-58	4028.0
12	APR	1981	1000	5.447	4085.3	-58	4027.3
12	APR	1981	1100	5.445	4083.8	-56	4025.8
12	APR	1981	1200	5.438	4078.5	-58	4020.5
12	APR	1981	1300	5.445	4083.8	-58	4025.8
12	APR	1981	1400	5.443	4082.3	-58	4024.3
12	APR	1981	1500	5.443	4082.3	-58	4024.3
12	APR	1981	1600	5.443	4082.3	-58	4024.3
12	APR	1981	1700	5.443	4082.3	-58	4024.3
12	APR	1981	1800	5.443	4082.3	-58	4024.3
12	APR	1981	1900	5.443	4082.3	-58	4024.3
12	APR	1981	2000	5.442	4081.5	-58	4023.5
12	APR	1981	2100	5.445	4083.8	-58	4025.8
12	APR	1981	2200	5.444	4083.0	-58	4025.0
12	APR	1981	2300	5.444	4083.0	-58	4025.0
13	APR	1981	0	5.443	4082.3	-58	4024.3
13	APR	1981	100	5.443	4082.3	-58	4024.3
13	APR	1981	200	5.443	4082.3	-58	4024.3
13	APR	1981	300	5.443	4082.3	-58	4024.3
13	APR	1981	400	5.443	4082.3	-58	4024.3
13	APR	1981	500	5.443	4082.3	-58	4024.3
13	APR	1981	600	5.443	4082.3	-58	4024.3
13	APR	1981	700	5.443	4082.3	-58	4024.3
13	APR	1981	800	5.443	4082.3	-58	4024.3
13	APR	1981	900	5.443	4082.3	-58	4024.3
13	APR	1981	1000	5.444	4083.0	-58	4025.0
13	APR	1981	1100	5.443	4082.3	-58	4024.3
13	APR	1981	1200	5.443	4082.3	-58	4024.3
13	APR	1981	1300	5.443	4082.3	-58	4024.3
13	APR	1981	1400	5.442	4081.5	-58	4023.5
13	APR	1981	1500	5.443	4082.3	-58	4024.3
13	APR	1981	1600	5.444	4083.0	-58	4025.0
13	APR	1981	1700	5.444	4083.0	-58	4025.0
13	APR	1981	1800	5.444	4083.0	-58	4025.0
13	APR	1981	1900	5.444	4083.0	-58	4025.0
13	APR	1981	2000	5.444	4083.0	-58	4025.0
13	APR	1981	2100	5.443	4082.3	-58	4024.3
13	APR	1981	2200	5.444	4083.0	-58	4025.0
13	APR	1981	2300	5.442	4081.5	-58	4023.5
14	APR	1981	0	5.442	4081.5	-58	4023.5
14	APR	1981	100	5.444	4083.0	-58	4025.0
14	APR	1981	200	5.443	4082.3	-58	4024.3
14	APR	1981	300	5.440	4080.0	-58	4022.0
14	APR	1981	400	5.440	4080.0	-58	4022.0
14	APR	1981	500	5.440	4080.0	-58	4022.0
14	APR	1981	600	5.440	4080.0	-58	4022.0
14	APR	1981	700	5.440	4080.0	-58	4022.0
14	APR	1981	800	5.440	4080.0	-58	4022.0
14	APR	1981	900	5.439	4079.3	-58	4021.3
14	APR	1981	1000	5.439	4079.3	-58	4021.3
14	APR	1981	1100	5.439	4079.3	-58	4021.3
14	APR	1981	1200	5.438	4078.5	-58	4020.5
14	APR	1981	1300	5.436	4077.0	-58	4019.0
14	APR	1981	1400	5.435	4076.3	-58	4018.3
14	APR	1981	1500	5.435	4076.3	-58	4018.3
14	APR	1981	1600	5.432	4074.0	-58	4016.0
14	APR	1981	1700	5.431	4073.3	-58	4015.3
14	APR	1981	1800	5.430	4072.5	-58	4014.5
14	APR	1981	1900	5.428	4071.0	-58	4013.0
14	APR	1981	2000	5.427	4070.3	-58	4012.3
14	APR	1981	2100	5.419	4064.3	-58	4006.3
14	APR	1981	2200	5.400	4050.0	-58	3992.0
14	APR	1981	2300	5.387	4040.3	-58	3982.3
15	APR	1981	0	5.403	4052.3	-58	3994.3
15	APR	1981	100	5.410	4057.5	-58	3999.5
15	APR	1981	200	5.413	4059.8	-58	4001.8

# FRAM 3 DEPTH DATA

DI	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
15	APR	1981	300	5.418	4062.0	1.58	4004.0
15	APR	1981	400	5.415	4061.3	1.58	4003.3
15	APR	1981	500	5.415	4061.3	1.58	4003.3
15	APR	1981	600	5.420	4065.0	1.58	4007.0
15	APR	1981	700	5.419	4064.3	1.58	4006.3
15	APR	1981	800	5.420	4065.0	1.58	4007.0
15	APR	1981	900	5.418	4063.5	1.58	4005.5
15	APR	1981	1000	5.412	4059.0	1.58	4001.0
15	APR	1981	1100	5.420	4065.0	1.58	4007.0
15	APR	1981	1200	5.420	4065.0	1.58	4007.0
15	APR	1981	1300	5.420	4065.0	1.58	4007.0
15	APR	1981	1400	5.420	4065.0	1.58	4007.0
15	APR	1981	1500	5.420	4065.0	1.58	4007.0
15	APR	1981	1600	5.420	4065.0	1.58	4007.0
15	APR	1981	1700	5.420	4065.0	1.58	4007.0
15	APR	1981	1800	5.420	4065.0	1.58	4007.0
15	APR	1981	1900	5.420	4065.0	1.58	4007.0
15	APR	1981	2000	5.420	4065.0	1.58	4007.0
15	APR	1981	2100	5.420	4065.0	1.58	4007.0
15	APR	1981	2200	5.420	4065.0	1.58	4007.0
15	APR	1981	2300	5.420	4065.0	1.58	4007.0
16	APR	1981	0	5.420	4065.0	1.58	4007.0
16	APR	1981	100	5.420	4065.0	1.58	4007.0
16	APR	1981	200	5.420	4065.0	1.58	4007.0
16	APR	1981	300	5.420	4065.0	1.58	4007.0
16	APR	1981	400	5.420	4065.0	1.58	4007.0
16	APR	1981	500	5.420	4065.0	1.58	4007.0
16	APR	1981	600	5.420	4065.0	1.58	4007.0
16	APR	1981	700	5.420	4065.0	1.58	4007.0
16	APR	1981	800	5.420	4065.0	1.58	4007.0
16	APR	1981	900	5.420	4065.0	1.58	4007.0
16	APR	1981	1000	5.420	4065.0	1.58	4007.0
16	APR	1981	1100	5.420	4065.0	1.58	4007.0
16	APR	1981	1200	5.420	4065.0	1.58	4007.0
16	APR	1981	1300	5.420	4065.0	1.58	4007.0
16	APR	1981	1400	5.420	4065.0	1.58	4007.0
16	APR	1981	1500	5.420	4065.0	1.58	4007.0
16	APR	1981	1600	5.420	4065.0	1.58	4007.0
16	APR	1981	1700	5.420	4065.0	1.58	4007.0
16	APR	1981	1800	5.420	4065.0	1.58	4007.0
16	APR	1981	1900	5.420	4065.0	1.58	4007.0
16	APR	1981	2000	5.421	4065.8	1.58	4007.8
16	APR	1981	2100	5.421	4065.8	1.58	4007.8
16	APR	1981	2200	5.423	4067.3	1.58	4009.3
16	APR	1981	2300	5.423	4067.3	1.58	4009.3
17	APR	1981	0	5.422	4066.5	1.58	4008.5
17	APR	1981	100	5.424	4068.0	1.58	4010.0
17	APR	1981	200	5.422	4066.5	1.58	4008.5
17	APR	1981	300	5.423	4067.3	1.58	4009.3
17	APR	1981	400	5.421	4065.8	1.58	4007.8
17	APR	1981	500	5.422	4066.5	1.58	4008.5
17	APR	1981	600	5.422	4066.5	1.58	4008.5
17	APR	1981	700	5.422	4066.5	1.58	4008.5
17	APR	1981	800	5.422	4066.5	1.58	4008.5
17	APR	1981	900	5.422	4066.5	1.58	4008.5
17	APR	1981	1000	5.422	4066.5	1.58	4008.5
17	APR	1981	1100	5.422	4066.5	1.58	4008.5
17	APR	1981	1200	5.422	4066.5	1.58	4008.5
17	APR	1981	1300	5.422	4066.5	1.58	4008.5
17	APR	1981	1400	5.422	4066.5	1.58	4008.5
17	APR	1981	1500	5.422	4066.5	1.58	4008.5
17	APR	1981	1600	5.420	4065.0	1.58	4007.0
17	APR	1981	1700	5.420	4065.0	1.58	4007.0
17	APR	1981	1800	5.420	4065.0	1.58	4007.0
17	APR	1981	1900	5.420	4065.0	1.58	4007.0
17	APR	1981	2000	5.420	4065.0	1.58	4007.0
17	APR	1981	2100	5.418	4063.5	1.58	4005.5
17	APR	1981	2200	5.415	4061.3	1.58	4003.3

# FRAM J DEPTH DATA

DT	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
17	APR	1981	2300	5.414	4060.5	-58	4002.5
18	APR	1981	0	5.415	4061.3	-58	4003.3
18	APR	1981	100	5.413	4059.8	-58	4001.8
18	APR	1981	200	5.413	4059.8	-58	4001.8
18	APR	1981	300	5.413	4059.8	-58	4001.8
18	APR	1981	400	5.413	4059.8	-58	4001.8
18	APR	1981	500	5.413	4059.8	-58	4001.8
18	APR	1981	600	5.412	4059.0	-58	4001.0
18	APR	1981	700	5.415	4061.3	-58	4003.3
18	APR	1981	800	5.415	4061.3	-58	4003.3
18	APR	1981	900	5.414	4060.5	-58	4002.5
18	APR	1981	1000	5.410	4057.5	-58	3999.5
18	APR	1981	1100	5.405	4053.8	-58	3995.8
18	APR	1981	1200	5.396	4047.0	-58	3999.0
18	APR	1981	1300	5.384	4038.0	-58	3980.0
18	APR	1981	1400	5.366	4024.5	-58	3966.5
18	APR	1981	1500	5.360	4020.0	-58	3962.0
18	APR	1981	1600	5.355	4016.3	-58	3958.3
18	APR	1981	1700	5.350	4012.5	-58	3954.5
18	APR	1981	1800	5.344	4008.0	-58	3950.0
18	APR	1981	1900	5.283	3962.3	-58	3904.3
18	APR	1981	2000	5.222	3916.5	-59	3857.5
18	APR	1981	2100	5.161	3870.8	-59	3811.8
18	APR	1981	2200	5.100	3825.0	-60	3765.0
18	APR	1981	2300	5.091	3818.3	-60	3758.3
19	APR	1981	0	5.063	3797.3	-60	3737.3
19	APR	1981	100	5.042	3781.5	-60	3721.5
19	APR	1981	200	5.021	3765.8	-60	3705.8
19	APR	1981	300	5.000	3750.0	-60	3690.0
19	APR	1981	400	4.979	3734.3	-60	3674.3
19	APR	1981	500	4.958	3718.5	-60	3658.5
19	APR	1981	600	4.937	3702.8	-60	3642.8
19	APR	1981	700	4.916	3687.0	-60	3627.0
19	APR	1981	800	4.895	3671.3	-60	3611.3
19	APR	1981	900	4.874	3655.5	-60	3595.5
19	APR	1981	1000	4.853	3639.8	-61	3578.8
19	APR	1981	1100	4.832	3624.0	-61	3563.0
19	APR	1981	1200	4.811	3608.3	-61	3547.3
19	APR	1981	1300	4.790	3592.5	-61	3531.5
19	APR	1981	1400	4.772	3579.0	-61	3518.0
19	APR	1981	1500	4.800	3600.0	-61	3539.0
19	APR	1981	1600	4.814	3610.5	-61	3549.5
19	APR	1981	1700	4.833	3624.8	-61	3563.8
19	APR	1981	1800	4.840	3630.0	-61	3569.0
19	APR	1981	1900	4.890	3667.5	-60	3607.5
19	APR	1981	2000	4.914	3685.5	-60	3625.5
19	APR	1981	2100	4.953	3714.8	-60	3654.8
19	APR	1981	2200	4.980	3735.0	-60	3675.0
19	APR	1981	2300	4.994	3745.5	-60	3685.5
20	APR	1981	0	4.988	3741.0	-60	3681.0
20	APR	1981	100	4.985	3738.8	-60	3678.8
20	APR	1981	200	4.975	3731.3	-60	3671.3
20	APR	1981	300	4.965	3723.8	-60	3663.8
20	APR	1981	400	4.963	3722.3	-60	3662.3
20	APR	1981	500	4.969	3726.8	-60	3666.8
20	APR	1981	600	4.977	3732.8	-60	3672.8
20	APR	1981	700	4.985	3738.8	-60	3678.8
20	APR	1981	800	4.993	3744.8	-60	3684.8
20	APR	1981	900	5.000	3750.0	-60	3690.0
20	APR	1981	1000	5.000	3750.0	-60	3690.0
20	APR	1981	1100	4.999	3749.3	-60	3689.3
20	APR	1981	1200	5.000	3750.0	-60	3690.0
20	APR	1981	1300	5.000	3750.0	-60	3690.0
20	APR	1981	1400	5.000	3750.0	-60	3690.0
20	APR	1981	1500	4.990	3742.5	-60	3682.5
20	APR	1981	1600	4.998	3748.5	-60	3688.5
20	APR	1981	1700	4.981	3735.8	-60	3675.8
20	APR	1981	1800	4.974	3730.5	-60	3670.5

# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GMT	SECONDS	METERS (UNCURR)	VEL CURR	METERS (CURR)
20	APR	1981	1900	4.961	3720.8	-60	3660.8
20	APR	1981	2000	4.944	3708.0	-60	3648.0
20	APR	1981	2100	4.934	3700.5	-60	3640.5
20	APR	1981	2200	4.912	3684.0	-60	3624.0
20	APR	1981	2300	4.893	3669.8	-60	3609.8
21	APR	1981	0	4.880	3660.0	-60	3600.0
21	APR	1981	100	4.860	3645.0	-61	3584.0
21	APR	1981	200	4.840	3630.0	-61	3569.0
21	APR	1981	300	4.811	3608.3	-61	3547.3
21	APR	1981	400	4.795	3596.3	-61	3535.3
21	APR	1981	500	4.782	3586.5	-61	3528.5
21	APR	1981	600	4.771	3578.3	-61	3517.3
21	APR	1981	700	4.760	3570.0	-61	3509.0
21	APR	1981	800	4.755	3566.3	-61	3505.3
21	APR	1981	900	4.740	3555.0	-61	3494.0
21	APR	1981	1000	4.720	3540.0	-61	3479.0
21	APR	1981	1100	4.698	3523.5	-61	3462.5
21	APR	1981	1200	4.681	3510.8	-61	3449.8
21	APR	1981	1300	4.655	3491.3	-61	3430.3
21	APR	1981	1400	4.634	3475.5	-61	3414.5
21	APR	1981	1500	4.605	3453.6	-61	3392.6
21	APR	1981	1600	4.581	3435.8	-60	3375.8
21	APR	1981	1700	4.558	3418.5	-60	3358.5
21	APR	1981	1800	4.545	3408.8	-60	3348.8
21	APR	1981	1900	4.556	3417.0	-60	3357.0
21	APR	1981	2000	4.567	3425.3	-60	3365.3
21	APR	1981	2100	4.511	3383.3	-60	3323.3
21	APR	1981	2200	4.491	3368.3	-60	3308.3
21	APR	1981	2300	4.465	3348.8	-60	3288.8
21	APR	1981	2310	4.459	3344.3	-60	3283.3
21	APR	1981	2320	4.458	3343.5	-60	3283.5
21	APR	1981	2330	4.450	3337.5	-60	3277.5
21	APR	1981	2340	4.440	3330.0	-60	3270.0
21	APR	1981	2350	4.430	3322.5	-60	3262.5
22	APR	1981	0	4.421	3315.8	-60	3255.8
22	APR	1981	10	4.410	3307.5	-60	3247.5
22	APR	1981	20	4.387	3290.3	-61	3229.3
22	APR	1981	30	4.370	3277.5	-61	3216.5
22	APR	1981	40	4.351	3263.3	-61	3202.3
22	APR	1981	50	4.326	3244.5	-61	3183.5
22	APR	1981	100	4.309	3231.8	-61	3170.8
22	APR	1981	200	3.950	2962.5	-61	2901.5
22	APR	1981	240	3.688	2766.0	-60	2706.0
22	APR	1981	250	3.640	2730.0	-59	2671.0
22	APR	1981	300	3.591	2693.3	-59	2634.3
22	APR	1981	310	3.550	2662.5	-59	2603.5
22	APR	1981	320	3.504	2628.0	-59	2569.0
22	APR	1981	330	3.460	2599.5	-58	2541.5
22	APR	1981	340	3.425	2568.8	-58	2510.8
22	APR	1981	350	3.385	2536.8	-58	2480.8
22	APR	1981	400	3.351	2513.3	-58	2455.3
22	APR	1981	410	3.393	2544.8	-58	2486.8
22	APR	1981	420	3.352	2514.0	-58	2456.0
22	APR	1981	430	3.310	2487.0	-58	2429.0
22	APR	1981	440	3.278	2458.5	-58	2400.5
22	APR	1981	450	3.243	2432.3	-57	2375.3
22	APR	1981	500	3.200	2400.0	-57	2343.0
22	APR	1981	510	3.169	2376.8	-57	2319.8
22	APR	1981	520	3.138	2353.5	-57	2296.5
22	APR	1981	530	3.110	2332.5	-56	2276.5
22	APR	1981	540	3.088	2316.0	-56	2260.0
22	APR	1981	550	3.076	2307.0	-56	2251.0
22	APR	1981	600	3.072	2304.0	-56	2248.0
22	APR	1981	610	3.077	2307.8	-56	2251.8
22	APR	1981	620	3.114	2335.5	-56	2279.5
22	APR	1981	630	3.253	2439.8	-57	2382.8
22	APR	1981	640	3.378	2533.5	-58	2475.5
22	APR	1981	650	3.433	2574.8	-58	2516.8



# FRAM 3 DEPTH DATA

DT	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VFL CORR	METERS (CORR)
22	APR	1981	700	3.451	2588.3	-58	2530.3
22	APR	1981	710	3.449	2586.8	-58	2528.8
22	APR	1981	720	3.439	2579.3	-58	2521.3
22	APR	1981	730	3.447	2585.3	-58	2527.3
22	APR	1981	740	3.469	2601.8	-59	2542.8
22	APR	1981	750	3.493	2619.8	-59	2560.8
22	APR	1981	800	3.457	2592.8	-58	2534.8
22	APR	1981	810	3.424	2568.0	-58	2510.0
22	APR	1981	820	3.390	2542.5	-58	2484.5
22	APR	1981	830	3.343	2507.3	-58	2449.3
22	APR	1981	850	3.330	2497.3	-58	2439.3
22	APR	1981	900	3.334	2500.5	-58	2442.5
22	APR	1981	920	3.530	2647.5	-59	2588.5
22	APR	1981	930	3.490	2617.5	-59	2558.5
22	APR	1981	940	3.459	2594.3	-58	2536.3
22	APR	1981	950	3.440	2580.0	-58	2522.0
22	APR	1981	1000	3.440	2580.0	-58	2522.0
22	APR	1981	1030	3.790	2842.5	-60	2782.5
22	APR	1981	1040	3.740	2805.0	-60	2745.0
22	APR	1981	1050	3.701	2775.8	-60	2715.8
22	APR	1981	1100	3.674	2755.5	-60	2695.5
22	APR	1981	1110	3.646	2734.5	-59	2675.5
22	APR	1981	1120	3.635	2726.3	-59	2667.3
22	APR	1981	1130	3.631	2723.3	-59	2664.3
22	APR	1981	1140	3.643	2732.3	-59	2673.3
22	APR	1981	1150	3.649	2736.8	-59	2677.8
22	APR	1981	1200	3.615	2711.3	-59	2652.3
22	APR	1981	1210	3.601	2700.8	-59	2641.8
22	APR	1981	1220	3.597	2697.8	-59	2638.8
22	APR	1981	1230	3.596	2697.0	-59	2638.0
22	APR	1981	1240	3.617	2712.8	-59	2653.8
22	APR	1981	1250	3.637	2727.8	-59	2668.8
22	APR	1981	1300	3.640	2730.0	-59	2671.0
22	APR	1981	1400	3.682	2761.5	-60	2701.5
22	APR	1981	1500	3.648	2736.0	-59	2677.0
22	APR	1981	1600	3.622	2716.5	-59	2657.5
22	APR	1981	1700	3.584	2691.0	-59	2632.0
22	APR	1981	1800	3.562	2671.5	-59	2612.5
22	APR	1981	1900	3.542	2656.5	-59	2597.5
22	APR	1981	2000	3.522	2641.5	-59	2582.5
22	APR	1981	2100	3.501	2625.8	-59	2566.8
22	APR	1981	2200	3.492	2619.0	-59	2560.0
22	APR	1981	2300	3.483	2612.3	-59	2553.3
23	APR	1981	0	3.484	2613.0	-59	2554.0
23	APR	1981	100	3.473	2604.8	-59	2545.8
23	APR	1981	200	3.452	2589.0	-58	2531.0
23	APR	1981	300	3.431	2573.3	-58	2515.3
23	APR	1981	400	3.422	2566.5	-58	2508.5
23	APR	1981	500	3.401	2550.8	-58	2492.8
23	APR	1981	600	3.384	2538.0	-58	2480.0
23	APR	1981	700	3.365	2523.8	-58	2465.8
23	APR	1981	800	3.343	2507.3	-58	2449.3
23	APR	1981	900	3.320	2490.0	-58	2432.0
23	APR	1981	1000	3.298	2473.5	-58	2415.5
23	APR	1981	1100	3.280	2460.0	-58	2402.0
23	APR	1981	1200	3.249	2436.8	-57	2379.8
23	APR	1981	1300	3.231	2423.3	-57	2366.3
23	APR	1981	1400	3.210	2407.5	-57	2350.5
23	APR	1981	1500	3.199	2399.3	-57	2342.3
23	APR	1981	1600	3.170	2377.5	-57	2320.5
23	APR	1981	1700	3.079	2309.3	-56	2253.3
23	APR	1981	1800	3.017	2262.8	-55	2207.8
23	APR	1981	1900	2.974	2230.5	-54	2176.5
23	APR	1981	2000	2.933	2199.8	-54	2145.8
23	APR	1981	2100	2.892	2169.0	-54	2115.0
23	APR	1981	2200	2.851	2138.3	-53	2085.3
23	APR	1981	2300	2.810	2107.5	-53	2054.5
24	APR	1981	0	2.769	2076.8	-52	2024.8

# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
24	APR	1981	100	2.728	2046.0	-51	1995.0
24	APR	1981	200	2.712	2034.0	-51	1983.0
24	APR	1981	300	2.680	2010.0	-51	1959.0
24	APR	1981	400	2.650	1987.5	-51	1936.5
24	APR	1981	500	2.610	1957.5	-51	1906.5
24	APR	1981	600	2.569	1926.8	-50	1876.8
24	APR	1981	700	2.508	1881.0	-49	1832.0
24	APR	1981	800	2.450	1837.5	-48	1789.5
24	APR	1981	900	2.408	1806.0	-48	1758.0
24	APR	1981	1000	2.322	1741.5	-46	1695.5
24	APR	1981	1100	2.224	1668.0	-45	1623.0
24	APR	1981	1200	2.122	1591.5	-44	1547.5
24	APR	1981	1300	2.047	1535.3	-43	1492.3
24	APR	1981	1400	1.991	1493.3	-42	1451.3
24	APR	1981	1500	1.940	1455.0	-42	1413.0
24	APR	1981	1600	1.909	1431.8	-41	1390.8
24	APR	1981	1700	1.882	1411.5	-41	1370.5
24	APR	1981	1800	1.861	1395.8	-41	1354.8
24	APR	1981	1900	1.848	1386.0	-41	1345.0
24	APR	1981	2000	1.830	1372.5	-40	1332.5
24	APR	1981	2100	1.823	1367.3	-40	1327.3
24	APR	1981	2200	1.813	1359.8	-40	1319.8
24	APR	1981	2300	1.800	1350.0	-40	1310.0
25	APR	1981	0	1.792	1344.0	-40	1304.0
25	APR	1981	100	1.785	1338.8	-39	1299.8
25	APR	1981	200	1.771	1328.3	-39	1289.3
25	APR	1981	300	1.750	1312.5	-39	1273.5
25	APR	1981	400	1.730	1297.5	-38	1259.5
25	APR	1981	500	1.709	1281.8	-38	1243.8
25	APR	1981	600	1.683	1262.3	-38	1224.3
25	APR	1981	700	1.668	1251.0	-37	1214.0
25	APR	1981	800	1.650	1237.5	-37	1200.5
25	APR	1981	900	1.641	1230.8	-37	1193.8
25	APR	1981	1000	1.642	1231.5	-37	1194.5
25	APR	1981	1100	1.641	1230.8	-37	1193.8
25	APR	1981	1200	1.642	1231.5	-37	1194.5
25	APR	1981	1300	1.644	1233.0	-37	1196.0
25	APR	1981	1400	1.646	1234.5	-37	1197.5
25	APR	1981	1500	1.649	1236.8	-37	1199.8
25	APR	1981	1600	1.647	1235.3	-37	1198.3
25	APR	1981	1700	1.657	1242.8	-37	1205.8
25	APR	1981	1800	1.656	1242.0	-37	1205.0
25	APR	1981	1900	1.663	1247.3	-37	1210.3
25	APR	1981	2000	1.666	1264.5	-38	1226.5
25	APR	1981	2100	1.693	1269.8	-38	1231.8
25	APR	1981	2200	1.705	1278.8	-38	1240.8
25	APR	1981	2300	1.720	1290.0	-38	1252.0
26	APR	1981	0	1.735	1301.3	-39	1262.3
26	APR	1981	100	1.740	1305.0	-39	1266.0
26	APR	1981	200	1.730	1297.5	-38	1259.5
26	APR	1981	300	1.712	1284.0	-38	1246.0
26	APR	1981	400	1.700	1275.0	-38	1237.0
26	APR	1981	500	1.671	1253.3	-37	1216.3
26	APR	1981	600	1.648	1236.0	-37	1199.0
26	APR	1981	700	1.620	1215.0	-36	1179.0
26	APR	1981	800	1.608	1206.0	-36	1170.0
26	APR	1981	900	1.602	1201.5	-36	1165.5
26	APR	1981	1000	1.592	1194.0	-36	1158.0
26	APR	1981	1100	1.562	1171.5	-35	1136.5
26	APR	1981	1200	1.530	1147.5	-35	1112.5
26	APR	1981	1300	1.503	1127.3	-35	1092.3
26	APR	1981	1400	1.460	1095.0	-34	1061.0
26	APR	1981	1500	1.434	1075.5	-34	1041.5
26	APR	1981	1600	1.410	1057.5	-33	1024.5
26	APR	1981	1700	1.390	1042.5	-33	1009.5
26	APR	1981	1800	1.370	1027.5	-33	994.5
26	APR	1981	1900	1.352	1014.0	-32	982.0
26	APR	1981	2000	1.341	1005.8	-32	973.8

# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CURR	METERS (CORR)
26	APR	1981	2100	1.330	997.5	-32	965.5
26	APR	1981	2200	1.324	993.0	-32	961.0
26	APR	1981	2300	1.320	990.0	-32	956.0
27	APR	1981	0	1.316	987.0	-32	955.0
27	APR	1981	100	1.312	984.0	-32	952.0
27	APR	1981	200	1.309	981.8	-32	949.8
27	APR	1981	300	1.305	978.8	-31	947.8
27	APR	1981	400	1.300	975.0	-31	944.0
27	APR	1981	500	1.298	973.5	-31	942.5
27	APR	1981	600	1.295	971.3	-31	940.3
27	APR	1981	700	1.292	969.0	-31	938.0
27	APR	1981	800	1.290	967.5	-31	936.5
27	APR	1981	900	1.284	963.0	-31	932.0
27	APR	1981	1000	1.278	958.5	-31	927.5
27	APR	1981	1100	1.269	951.8	-31	920.8
27	APR	1981	1200	1.259	944.3	-30	914.3
27	APR	1981	1300	1.249	936.8	-30	906.8
27	APR	1981	1400	1.243	932.3	-30	902.3
27	APR	1981	1500	1.238	928.5	-30	898.5
27	APR	1981	1600	1.230	922.5	-30	892.5
27	APR	1981	1700	1.217	912.8	-29	883.8
27	APR	1981	1800	1.212	909.0	-29	880.0
27	APR	1981	1900	1.210	907.5	-29	878.5
27	APR	1981	2000	1.205	903.8	-29	874.8
27	APR	1981	2100	1.202	901.5	-29	872.5
27	APR	1981	2200	1.202	901.5	-29	872.5
27	APR	1981	2300	1.200	900.0	-29	871.0
28	APR	1981	0	1.200	900.0	-29	871.0
28	APR	1981	100	1.200	900.0	-29	871.0
28	APR	1981	200	1.200	900.0	-29	871.0
28	APR	1981	300	1.200	900.0	-29	871.0
28	APR	1981	400	1.205	903.8	-29	874.8
28	APR	1981	500	1.201	900.8	-29	871.8
28	APR	1981	600	1.201	900.8	-29	871.8
28	APR	1981	700	1.201	900.8	-29	871.8
28	APR	1981	800	1.201	900.8	-29	871.8
28	APR	1981	900	1.201	900.8	-29	871.8
28	APR	1981	1000	1.200	900.0	-29	871.8
28	APR	1981	1100	1.199	899.3	-29	870.3
28	APR	1981	1200	1.196	897.0	-29	868.0
28	APR	1981	1300	1.194	895.5	-29	866.5
28	APR	1981	1400	1.193	894.8	-29	865.8
28	APR	1981	1500	1.189	891.8	-29	862.8
28	APR	1981	1600	1.185	888.8	-28	860.8
28	APR	1981	1700	1.182	886.5	-28	858.5
28	APR	1981	1800	1.178	883.5	-28	855.5
28	APR	1981	1900	1.171	878.3	-28	850.3
28	APR	1981	2000	1.168	876.0	-28	848.0
28	APR	1981	2100	1.165	873.8	-28	845.8
28	APR	1981	2200	1.160	870.0	-28	842.0
28	APR	1981	2300	1.160	870.0	-28	842.0
29	APR	1981	0	1.160	870.0	-28	842.0
29	APR	1981	100	1.160	870.0	-28	842.0
29	APR	1981	200	1.160	870.0	-28	842.0
29	APR	1981	300	1.160	870.0	-28	842.0
29	APR	1981	400	1.160	870.0	-28	842.0
29	APR	1981	500	1.160	870.0	-28	842.0
29	APR	1981	600	1.159	869.3	-28	841.3
29	APR	1981	700	1.159	869.3	-28	841.3
29	APR	1981	800	1.158	868.5	-28	840.5
29	APR	1981	900	1.157	867.8	-28	839.8
29	APR	1981	1000	1.157	867.8	-28	839.8
29	APR	1981	1100	1.157	867.8	-28	839.8
29	APR	1981	1200	1.154	865.5	-28	837.5
29	APR	1981	1300	1.152	864.0	-28	836.0
29	APR	1981	1400	1.150	862.5	-28	834.5
29	APR	1981	1500	1.147	860.3	-28	832.3
29	APR	1981	1600	1.143	857.3	-27	830.3

# FRAM 3 DEPTH DATA

DAY	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
29	APR	1981	1700	1.140	855.0	-27	828.0
29	APR	1981	1800	1.135	851.3	-27	824.3
29	APR	1981	1900	1.120	840.0	-27	813.0
29	APR	1981	2000	1.125	843.8	-27	816.8
29	APR	1981	2100	1.122	841.5	-27	814.5
29	APR	1981	2200	1.120	840.0	-27	813.0
29	APR	1981	2300	1.119	839.3	-27	812.3
30	APR	1981	0	1.118	838.5	-27	811.5
30	APR	1981	100	1.116	837.0	-27	810.0
30	APR	1981	200	1.115	836.3	-27	809.3
30	APR	1981	300	1.116	837.0	-27	810.0
30	APR	1981	400	1.115	836.3	-27	809.3
30	APR	1981	500	1.113	834.8	-27	807.8
30	APR	1981	600	1.113	834.8	-27	807.8
30	APR	1981	700	1.110	832.5	-27	805.5
30	APR	1981	800	1.109	831.8	-27	804.8
30	APR	1981	900	1.109	831.8	-27	804.8
30	APR	1981	1000	1.110	832.5	-27	805.5
30	APR	1981	1100	1.109	831.8	-27	804.8
30	APR	1981	1200	1.109	831.8	-27	804.8
30	APR	1981	1300	1.110	832.5	-27	805.5
30	APR	1981	1400	1.112	834.0	-27	807.0
30	APR	1981	1500	1.112	834.0	-27	807.0
30	APR	1981	1600	1.099	824.3	-26	798.3
30	APR	1981	1700	1.096	822.0	-26	796.0
30	APR	1981	1800	1.088	816.0	-26	790.0
30	APR	1981	1900	1.086	814.5	-26	788.5
30	APR	1981	2000	1.088	816.0	-26	790.0
30	APR	1981	2100	1.088	816.0	-26	790.0
30	APR	1981	2200	1.083	812.3	-26	785.3
30	APR	1981	2300	1.084	813.0	-26	787.0
1	MAY	1981	0	1.083	812.3	-26	786.3
1	MAY	1981	100	1.080	810.0	-26	784.0
1	MAY	1981	200	1.077	807.8	-26	781.8
1	MAY	1981	300	1.074	805.5	-26	779.5
1	MAY	1981	400	1.075	806.3	-26	780.3
1	MAY	1981	500	1.077	807.8	-26	781.8
1	MAY	1981	600	1.080	810.0	-26	784.0
1	MAY	1981	700	1.081	810.8	-26	784.8
1	MAY	1981	800	1.080	810.0	-26	784.0
1	MAY	1981	900	1.077	807.8	-26	781.8
1	MAY	1981	1000	1.071	803.3	-26	777.3
1	MAY	1981	1100	1.070	802.5	-26	776.5
1	MAY	1981	1200	1.070	802.5	-26	776.5
1	MAY	1981	1300	1.072	804.0	-26	778.0
1	MAY	1981	1400	1.078	808.5	-26	782.5
1	MAY	1981	1500	1.084	813.0	-26	787.0
1	MAY	1981	1600	1.083	812.3	-26	786.3
1	MAY	1981	1700	1.087	815.3	-26	789.3
1	MAY	1981	1800	1.083	812.3	-26	786.3
1	MAY	1981	1900	1.085	813.8	-26	787.8
1	MAY	1981	2000	1.080	810.0	-26	784.0
1	MAY	1981	2100	1.088	816.0	-26	790.0
1	MAY	1981	2200	1.079	809.3	-26	783.3
1	MAY	1981	2300	1.080	810.0	-26	784.0
2	MAY	1981	0	1.085	813.8	-26	787.8
2	MAY	1981	100	1.075	806.3	-26	780.3
2	MAY	1981	200	1.067	800.3	-26	774.3
2	MAY	1981	300	1.065	798.8	-25	773.8
2	MAY	1981	400	1.069	801.8	-26	775.8
2	MAY	1981	500	1.070	802.5	-26	776.5
2	MAY	1981	600	1.068	801.0	-26	775.0
2	MAY	1981	700	1.063	797.3	-25	772.3
2	MAY	1981	800	1.059	794.3	-25	769.3
2	MAY	1981	900	1.060	795.0	-25	770.0
2	MAY	1981	1000	1.059	794.3	-25	769.3
2	MAY	1981	1100	1.062	796.5	-25	771.5
2	MAY	1981	1200	1.065	798.8	-25	773.8

# FRAM 3 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
2	MAY	1981	1300	1.065	798.8	-25	773.8
2	MAY	1981	1400	1.066	799.5	-25	774.5
2	MAY	1981	1500	1.067	800.3	-26	774.3
2	MAY	1981	1600	1.068	799.5	-25	774.5
2	MAY	1981	1700	1.068	801.0	-26	775.0
2	MAY	1981	1800	1.066	799.5	-25	774.5
2	MAY	1981	1900	1.072	804.0	-26	778.0
2	MAY	1981	2000	1.094	820.5	-26	794.5
2	MAY	1981	2100	1.066	799.5	-25	774.5
2	MAY	1981	2200	1.063	797.3	-25	772.3
2	MAY	1981	2300	1.069	801.8	-26	775.8
3	MAY	1981	0	1.068	801.0	-26	775.0
3	MAY	1981	100	1.061	795.8	-25	770.8
3	MAY	1981	200	1.054	790.5	-25	765.5
3	MAY	1981	300	1.060	795.0	-25	770.0
3	MAY	1981	400	1.065	798.8	-25	773.8
3	MAY	1981	500	1.068	801.0	-26	775.0
3	MAY	1981	600	1.068	801.0	-26	775.0
3	MAY	1981	620	1.071	803.3	-26	777.3
3	MAY	1981	650	1.088	816.0	-26	790.0
3	MAY	1981	700	1.095	821.3	-26	795.3
3	MAY	1981	720	1.063	797.3	-26	771.3
3	MAY	1981	800	1.072	804.0	-26	778.0
3	MAY	1981	900	1.075	806.3	-26	780.3
3	MAY	1981	930	1.079	809.3	-26	783.3
3	MAY	1981	1000	1.065	798.8	-25	773.8
3	MAY	1981	1100	1.070	802.5	-26	776.5
3	MAY	1981	1200	1.075	806.3	-26	780.3
3	MAY	1981	1300	1.070	802.5	-26	776.5
3	MAY	1981	1400	1.071	803.3	-26	777.3
3	MAY	1981	1500	1.071	803.3	-26	777.3
3	MAY	1981	1600	1.077	807.8	-26	781.8
3	MAY	1981	1700	1.080	810.0	-26	784.0
3	MAY	1981	1800	1.095	821.3	-26	795.3
3	MAY	1981	1810	1.109	831.8	-27	804.8
3	MAY	1981	1830	1.064	813.0	-26	787.0
3	MAY	1981	1900	1.080	810.0	-26	784.0
3	MAY	1981	2000	1.069	801.8	-26	775.8
3	MAY	1981	2030	1.072	804.0	-26	778.0
3	MAY	1981	2050	1.081	810.8	-26	784.8
3	MAY	1981	2100	1.086	814.5	-26	788.5
3	MAY	1981	2200	1.073	804.8	-26	778.8
3	MAY	1981	2300	1.070	802.5	-26	776.5
4	MAY	1981	0	1.070	802.5	-26	776.5
4	MAY	1981	100	1.074	805.5	-26	779.5
4	MAY	1981	200	1.069	816.8	-26	790.8
4	MAY	1981	300	1.098	823.5	-26	797.5
4	MAY	1981	310	1.128	846.0	-27	819.0
4	MAY	1981	320	1.135	851.3	-27	824.3
4	MAY	1981	330	1.144	858.0	-27	831.0
4	MAY	1981	340	1.153	864.8	-28	836.8
4	MAY	1981	350	1.162	871.5	-28	843.5
4	MAY	1981	400	1.171	878.3	-28	850.3
4	MAY	1981	410	1.182	886.5	-28	858.5
4	MAY	1981	420	1.200	900.0	-29	871.0
4	MAY	1981	430	1.215	911.3	-29	882.3
4	MAY	1981	440	1.188	891.0	-29	862.0
4	MAY	1981	450	1.144	858.0	-27	831.0
4	MAY	1981	500	1.100	825.0	-26	799.0
4	MAY	1981	510	1.082	811.5	-26	785.5
4	MAY	1981	520	1.077	807.8	-26	781.8
4	MAY	1981	530	1.073	804.8	-26	778.8
4	MAY	1981	540	1.071	803.3	-26	777.3
4	MAY	1981	550	1.070	802.5	-26	776.5
4	MAY	1981	600	1.070	802.5	-26	776.5
4	MAY	1981	700	1.074	805.5	-26	779.5
4	MAY	1981	800	1.079	809.3	-26	783.3
4	MAY	1981	900	1.072	804.0	-26	778.0

# FRA 4 J DEPTH DATA

CI	MON	YEAR	GAT	SECONDS	METERS (UNCORR)	VEL CURR	METERS (CORR)
4	MAY	1981	1000	1.072	804.0	-26	778.0
4	MAY	1981	1100	1.079	809.3	-26	783.3
4	MAY	1981	1200	1.078	808.5	-26	782.5
4	MAY	1981	1300	1.088	816.0	-26	790.0
4	MAY	1981	1400	1.090	817.5	-26	791.5
4	MAY	1981	1500	1.071	803.3	-26	777.3
4	MAY	1981	1600	1.088	814.5	-26	788.5
4	MAY	1981	1700	1.098	823.5	-26	797.5
4	MAY	1981	1800	1.092	819.0	-26	793.0
4	MAY	1981	1900	1.080	810.0	-26	784.0
4	MAY	1981	2000	1.080	810.0	-26	784.0
4	MAY	1981	2100	1.089	816.8	-26	790.8
4	MAY	1981	2200	1.100	825.0	-26	799.0
4	MAY	1981	2300	1.115	836.3	-27	809.3
5	MAY	1981	0	1.122	841.5	-27	814.5
5	MAY	1981	100	1.129	846.8	-27	819.8
5	MAY	1981	200	1.130	852.0	-27	825.0
5	MAY	1981	300	1.142	856.5	-27	825.5
5	MAY	1981	400	1.150	867.0	-28	835.0
5	MAY	1981	500	1.114	835.5	-27	808.5
5	MAY	1981	600	1.083	812.3	-26	786.3
5	MAY	1981	700	1.099	824.3	-26	796.3
5	MAY	1981	800	1.096	823.5	-26	797.5
5	MAY	1981	900	1.084	813.0	-26	787.0
5	MAY	1981	1000	1.093	819.8	-26	791.8
5	MAY	1981	1100	1.101	825.8	-26	799.8
5	MAY	1981	1200	1.135	851.3	-27	824.3
5	MAY	1981	1300	1.168	867.0	-28	848.0
5	MAY	1981	1400	1.190	892.5	-29	861.5
5	MAY	1981	1500	1.202	901.5	-29	872.5
5	MAY	1981	1600	1.189	891.8	-29	862.8
5	MAY	1981	1700	1.152	864.0	-28	836.0
5	MAY	1981	1800	1.101	825.8	-26	795.8
5	MAY	1981	1900	1.101	825.8	-26	795.8
5	MAY	1981	2000	1.099	824.3	-26	796.3
5	MAY	1981	2100	1.096	822.0	-26	796.0
5	MAY	1981	2200	1.099	824.3	-26	796.3
5	MAY	1981	2300	1.101	825.6	-26	799.8
6	MAY	1981	0	1.105	828.8	-26	802.8
6	MAY	1981	100	1.104	828.0	-26	802.0
6	MAY	1981	200	1.105	828.8	-26	802.8
6	MAY	1981	300	1.100	829.5	-26	803.5
6	MAY	1981	400	1.107	830.3	-27	803.3
6	MAY	1981	500	1.108	831.0	-27	804.0
6	MAY	1981	600	1.109	831.8	-27	804.8
6	MAY	1981	700	1.110	832.5	-27	805.5
6	MAY	1981	800	1.111	833.3	-27	806.3
6	MAY	1981	900	1.112	834.0	-27	807.0
6	MAY	1981	1000	1.120	840.0	-27	813.0
6	MAY	1981	1100	1.105	828.8	-26	802.8
6	MAY	1981	1200	1.110	832.5	-27	805.5
6	MAY	1981	1300	1.115	836.3	-27	809.3
6	MAY	1981	1400	1.120	840.0	-27	813.0
6	MAY	1981	1500	1.120	840.0	-27	813.0
6	MAY	1981	1600	1.125	843.8	-27	816.8
6	MAY	1981	1700	1.127	845.3	-27	818.3
6	MAY	1981	1800	1.130	847.5	-27	820.5
6	MAY	1981	1900	1.141	855.8	-27	828.8
6	MAY	1981	2000	1.132	849.0	-27	822.0
6	MAY	1981	2100	1.131	848.3	-27	821.3
6	MAY	1981	2200	1.157	867.8	-28	835.8
6	MAY	1981	2300	1.157	867.8	-28	835.8
7	MAY	1981	0	1.135	851.3	-27	824.3
7	MAY	1981	100	1.140	855.0	-27	828.0
7	MAY	1981	200	1.145	858.5	-27	831.8
7	MAY	1981	300	1.141	855.8	-27	828.8
7	MAY	1981	400	1.141	855.8	-27	828.8
7	MAY	1981	500	1.140	855.0	-27	828.0

# FRAM 3 DEPTH DATA

DT	MON	YEAR	GMT	SECONDS	METERS (UNCURR)	VEL CURR	METERS (CURR)
7	MAY	1981	600	1.141	855.8	-27	828.8
7	MAY	1981	700	1.142	856.5	-27	829.5
7	MAY	1981	800	1.143	857.3	-27	830.3
7	MAY	1981	900	1.159	869.3	-28	841.3
7	MAY	1981	1000	1.174	880.5	-28	852.5
7	MAY	1981	1100	1.175	881.3	-28	853.3
7	MAY	1981	1200	1.170	877.5	-28	849.5
7	MAY	1981	1300	1.170	877.5	-28	849.5
7	MAY	1981	1400	1.186	876.0	-28	846.0
7	MAY	1981	1500	1.175	881.3	-28	853.3
7	MAY	1981	1600	1.175	881.3	-28	853.3
7	MAY	1981	1700	1.176	882.0	-28	854.0
7	MAY	1981	1800	1.182	886.5	-28	858.5
7	MAY	1981	1900	1.200	900.0	-29	871.0
7	MAY	1981	2000	1.190	892.5	-29	863.5
7	MAY	1981	2100	1.186	889.5	-28	861.5
7	MAY	1981	2200	1.190	892.5	-29	863.5
7	MAY	1981	2300	1.190	892.5	-29	863.5
8	MAY	1981	0	1.197	897.8	-29	866.8
8	MAY	1981	100	1.200	900.0	-29	871.0
8	MAY	1981	200	1.200	900.0	-29	871.0
8	MAY	1981	300	1.200	900.0	-29	871.0
8	MAY	1981	400	1.196	898.5	-29	869.5
8	MAY	1981	500	1.196	897.0	-29	868.0
8	MAY	1981	600	1.194	895.5	-29	866.5
8	MAY	1981	700	1.193	894.8	-29	865.8
8	MAY	1981	800	1.192	894.0	-29	865.0
8	MAY	1981	900	1.194	895.5	-29	866.5

### Gravity

The earth's gravity field was monitored during the occupation of the Fram stations with LaCoste and Romberg Geodetic gravimeter serial number G-27. This instrument has a range of over 7,000 milligals, a reading accuracy of  $\pm 0.01$  milligal, and a drift rate which is often less than 1 milligal per month. The instrument was especially modified for use on ice floes by the addition of variable damping to suppress the ice oscillation noise. The instrument was located in the Lamont residence hut at Fram III where it was mounted on a wooded pier frozen into the ice. The pier extended through a hole in the floor and was free of contact with the hut itself. Instrument elevation was less than one meter above sea level.

The gravity data were calibrated with measurements at Nord on the way out and on return from Fram III. The tie readings at Nord were taken at the geodetic monument located in front of the HQ building. The instrument was placed on the monument and centered over the pin for readings. The location of this site is reported to be  $81^{\circ}36' 09''\text{N}$   $16^{\circ}40'12''\text{W}$ . The readings at Nord were:

March 20, 1981	6767.68 mgals
May 12, 1981	<u>6766.07</u>
Difference	-1.61 mgals



Corrections were made to the data for this drift. Relative gravity was converted to absolute using a nominal value of 983.0823 gals for Nord based on ties with Thule in 1979.

Gravity data for Fram I and II were reported in previous technical reports (Hunkins et al, 1979; Allen et al, 1980). In those reports no correction was made for instrument drift since it was only about one-half of a milligal per month. In order to make the data from all three stations consistent, drift corrections have subsequently made to the Fram I and II data and the revised values are listed here. The absolute gravity values as reported by Hunkins et al (1979) for Fram I had a constant offset error so that they were 4.0 milligals too high. This error has been corrected in the listing here. The relative gravity data in that earlier report were correct.

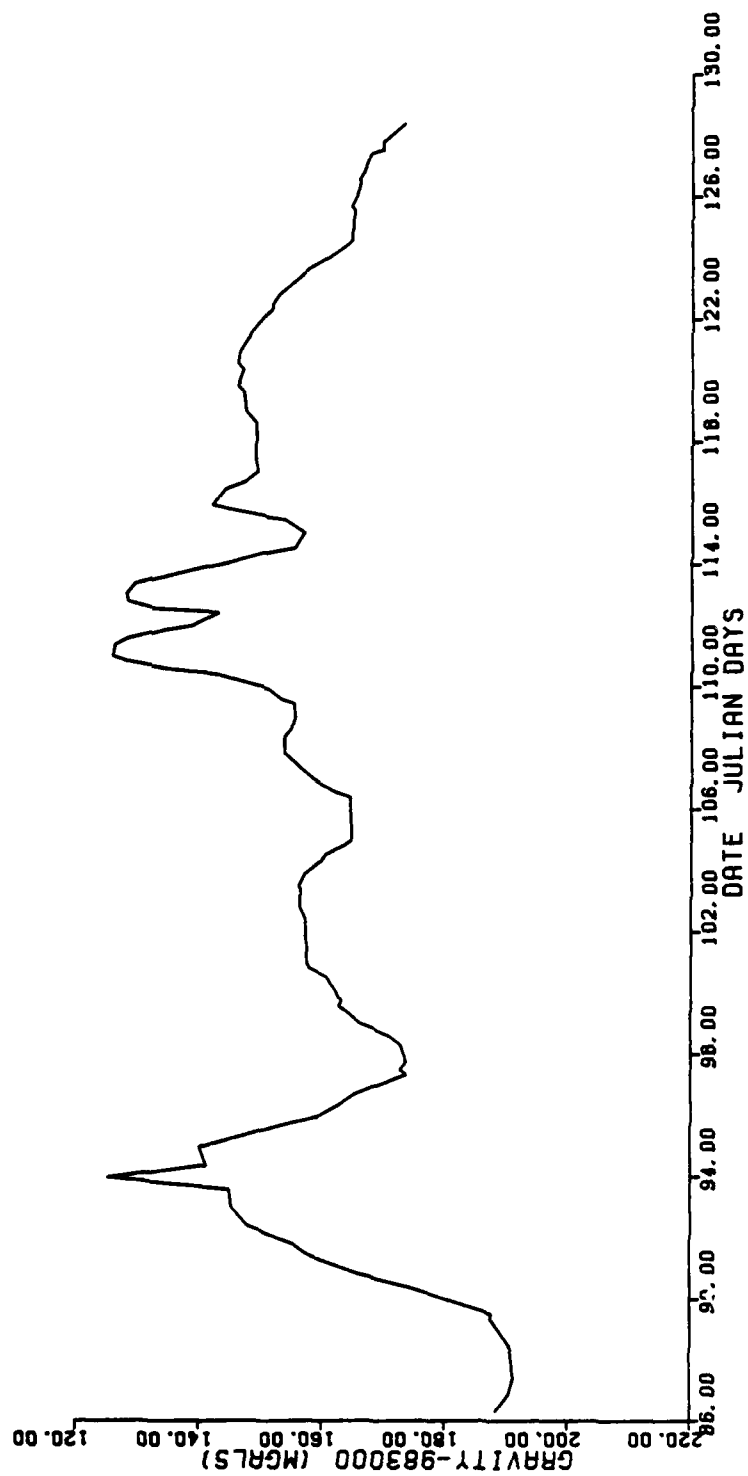


Figure 5 - Gravity profile along drift track of Fram III.

AD-A109 987

LAMONT-DOHERTY GEOLOGICAL OBSERVATORY PALISADES NY  
GEOPHYSICAL DATA FROM DRIFTING ICE STATION FRAM III.(U)  
DEC 81 K HUNKINS, T O MANLEY, W TIEMANN

F/G 8/10

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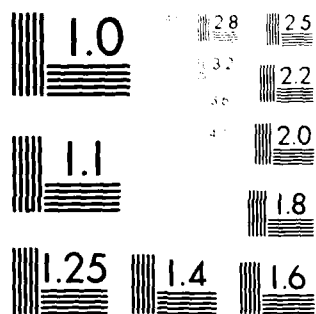
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

GRAVITY OBSERVATIONS AT FRAM III

Key to column headings:

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
CTR RDG	Counter reading
MGALS	Relative gravity in milligals
GRAVITY	Absolute gravity in milligals

# FRAM 3 GRAVITY DATA

DY	MON	YEAR	GAT	CTR RDG	MGALS	GRAVITY
27	MAR	1981	769	0528.70	0673.81	983188.44
27	MAR	1981	2935	0530.70	0675.92	983190.56
28	MAR	1981	908	0531.43	0676.69	983191.31
29	MAR	1981	840	0530.90	0676.19	983190.61
30	MAR	1981	805	0527.79	0672.86	983187.50
30	MAR	1981	1220	0527.99	0673.01	983187.63
31	MAR	1981	920	0515.12	0659.51	983174.13
31	MAR	1981	1939	0507.32	0651.30	983165.94
1	APR	1981	901	0500.25	0643.85	983158.50
1	APR	1981	1240	0499.05	0642.58	983157.19
1	APR	1981	1910	0497.35	0640.79	983155.44
2	APR	1981	905	0490.27	0633.33	983147.94
3	APR	1981	10	0486.80	0630.72	983145.31
3	APR	1981	830	0487.80	0630.52	983145.13
3	APR	1981	1342	0487.40	0630.31	983144.94
3	APR	1981	2334	0486.80	0610.72	983125.31
4	APR	1981	852	0483.93	0620.06	983141.25
4	APR	1981	2310	0482.83	0625.50	983140.13
5	APR	1981	925	0490.46	0633.53	983148.13
5	APR	1981	1531	0494.80	0638.17	983152.81
5	APR	1981	1848	0497.36	0640.60	983155.44
5	APR	1981	1955	0498.50	0642.07	983156.69
5	APR	1981	2240	0500.76	0644.39	983159.00
6	APR	1981	821	0504.39	0648.21	983162.81
6	APR	1981	1321	0505.79	0649.69	983164.31
6	APR	1981	1848	0506.79	0650.74	983165.36
6	APR	1981	2200	0509.49	0653.58	983168.19
7	APR	1981	806	0511.82	0656.04	983173.69
7	APR	1981	1200	0513.82	0656.14	983172.81
7	APR	1981	1806	0514.62	0658.99	983173.63
7	APR	1981	2049	0514.52	0658.88	983173.50
8	APR	1981	727	0513.59	0658.17	983172.81
8	APR	1981	1334	0512.25	0656.49	983171.13
8	APR	1981	2001	0509.05	0653.75	983168.38
8	APR	1981	2356	0507.65	0651.65	983166.25
9	APR	1981	900	0505.88	0649.57	983164.19
9	APR	1981	1342	0504.18	0647.99	983162.63
9	APR	1981	1811	0504.80	0648.52	983163.13
9	APR	1981	2109	0504.08	0647.89	983162.50
10	APR	1981	22	0503.90	0647.70	983162.31
10	APR	1981	947	0502.70	0646.43	983161.06
10	APR	1981	1211	0502.46	0646.18	983160.81
10	APR	1981	1943	0499.70	0643.27	983157.88
10	APR	1981	2335	0499.40	0642.95	983157.56
11	APR	1981	753	0499.33	0642.88	983157.50
11	APR	1981	1212	0499.33	0642.88	983157.50
11	APR	1981	2014	0499.13	0642.67	983157.31
11	APR	1981	2343	0499.23	0642.77	983157.36
12	APR	1981	1038	0499.16	0642.70	983157.31
12	APR	1981	1850	0498.36	0641.86	983156.50
13	APR	1981	910	0498.34	0641.84	983156.44
13	APR	1981	1153	0498.09	0641.57	983156.19
13	APR	1981	2100	0498.99	0642.52	983157.13
14	APR	1981	746	0501.62	0645.30	983159.94
14	APR	1981	1240	0502.32	0646.03	983160.63
14	APR	1981	1956	0505.22	0649.09	983163.69
14	APR	1981	2320	0506.22	0650.14	983164.75
15	APR	1981	901	0506.25	0650.17	983164.81
15	APR	1981	1256	0506.15	0650.07	983164.69
16	APR	1981	231	0506.08	0649.99	983164.63
16	APR	1981	913	0506.08	0649.99	983164.63
16	APR	1981	1312	0503.88	0647.68	983162.31
16	APR	1981	2107	0500.98	0644.62	983159.25
17	APR	1981	5	0500.21	0643.61	983156.44
17	APR	1981	821	0498.31	0641.80	983156.44
17	APR	1981	1255	0497.41	0640.86	983155.50
17	APR	1981	1955	0495.91	0639.29	983153.88
18	APR	1981	851	0495.94	0639.31	983153.94

# FRAM 3 GRAVITY DATA

UY	MUN	YEAR	GAT	CTR RDG	MGALS	GRAVITY
18	APR	1981	1449	0497.04	0840.47	983155.06
19	APR	1981	5	0497.50	0841.01	983155.63
19	APR	1981	1051	0497.30	0840.80	983155.44
19	APR	1981	1159	0496.00	0840.18	983154.81
19	APR	1981	1351	0495.56	0838.91	983153.50
19	APR	1981	2213	0493.46	0836.69	983151.31
20	APR	1981	930	0485.49	0826.30	983142.94
20	APR	1981	1410	0477.79	0820.19	983134.81
20	APR	1981	2023	0471.29	0813.34	983127.94
20	APR	1981	2357	0409.39	0811.34	983125.94
21	APR	1981	922	0409.82	0811.79	983126.44
21	APR	1981	1403	0471.22	0813.90	983128.50
21	APR	1981	2028	0477.52	0819.90	983134.50
21	APR	1981	2348	0481.72	0824.33	983138.94
22	APR	1981	949	0485.75	0828.57	983143.19
22	APR	1981	1328	0475.35	0817.62	983132.25
22	APR	1981	1844	0471.75	0813.82	983128.44
23	APR	1981	30	0471.58	0813.65	983128.25
23	APR	1981	900	0472.98	0815.12	983129.75
23	APR	1981	2036	0482.98	0825.65	983140.25
24	APR	1981	44	0487.01	0829.90	983144.50
24	APR	1981	854	0493.01	0836.22	983150.81
24	APR	1981	1250	0498.11	0841.59	983155.50
25	APR	1981	23	0498.94	0842.47	983157.06
25	APR	1981	1030	0495.94	0839.31	983153.94
25	APR	1981	1245	0493.34	0836.57	983151.19
25	APR	1981	1956	0486.64	0829.51	983144.13
25	APR	1981	2421	0484.74	0827.51	983142.13
26	APR	1981	1044	0486.77	0829.65	983144.25
26	APR	1981	1837	0489.97	0833.02	983147.44
27	APR	1981	9	0491.80	0834.95	983149.56
27	APR	1981	821	0491.50	0834.63	983149.25
27	APR	1981	1441	0491.50	0834.63	983149.25
27	APR	1981	1726	0491.50	0834.63	983149.25
28	APR	1981	1135	0491.42	0834.55	983149.19
28	APR	1981	1404	0491.42	0834.55	983149.19
28	APR	1981	2327	0489.92	0832.97	983147.56
29	APR	1981	1428	0489.05	0832.65	983147.25
29	APR	1981	1913	0488.75	0831.73	983146.38
29	APR	1981	2325	0488.85	0831.84	983146.44
30	APR	1981	821	0489.48	0832.50	983147.13
30	APR	1981	1326	0488.68	0831.66	983146.25
30	APR	1981	2229	0488.98	0831.98	983146.63
1	MAY	1981	953	0490.51	0833.59	983148.19
1	MAY	1981	1309	0490.81	0833.90	983148.50
1	MAY	1981	1840	0491.51	0834.64	983149.25
2	MAY	1981	809	0493.94	0837.20	983151.81
2	MAY	1981	1248	0494.04	0837.31	983151.94
2	MAY	1981	2002	0495.14	0838.46	983153.06
3	MAY	1981	1115	0498.77	0842.29	983156.94
3	MAY	1981	1449	0499.27	0842.82	983157.44
4	MAY	1981	30	0502.70	0846.43	983161.06
4	MAY	1981	915	0505.30	0849.17	983163.81
4	MAY	1981	1332	0506.20	0850.12	983164.75
4	MAY	1981	1918	0506.30	0850.22	983164.81
4	MAY	1981	2327	0506.50	0850.43	983165.06
5	MAY	1981	1339	0506.43	0850.36	983165.00
5	MAY	1981	1550	0506.03	0849.94	983164.56
5	MAY	1981	2358	0506.83	0850.78	983165.38
6	MAY	1981	950	0507.46	0851.45	983166.06
6	MAY	1981	1334	0507.36	0851.34	983165.94
6	MAY	1981	1922	0508.06	0852.08	983166.69
7	MAY	1981	908	0509.08	0853.15	983167.75
7	MAY	1981	1248	0510.98	0855.15	983169.75
7	MAY	1981	1842	0510.98	0855.15	983169.75
8	MAY	1981	914	0514.31	0856.66	983173.25

RECALCULATED GRAVITY VALUES

FOR FRAM I AND II

The positions recorded at each gravity observation are in degrees, minutes, and decimal seconds. By convention, west longitudes are designated as negative longitudes. All latitudes are north latitudes. Each position is the one closest in time and does not reflect the actual location at the time of the observation. Counter readings are in milligals.



# RECALCULATED GRAVITY VALUES FOR FRAM I

DAY	MONTH	YEAR	TIME (GMT)	LATITUDE	LONGITUDE	COUNTER READING	CORRECTED MILLIGALS	ABSOLUTE GRAVITY
27	3	79	1715	84 50 33.720	-9 49 28.980	6530.06	6875.04	983190.56
31	3	79	2200	84 44 48.720	-10 17 5.760	6539.55	6884.96	983200.50
	4	79	1730	84 43 47.160	-10 14 42.540	6538.98	6884.33	983199.88
	4	79	1320	84 44 3.420	-10 13 14.760	6537.92	6883.20	983198.75
	4	79	1600	84 38 57.960	-9 27 28.200	6535.38	6880.50	983196.00
	4	79	1200	84 38 21.960	-9 17 8.220	6537.43	6882.64	983198.19
	4	79	1621	84 38 18.840	-9 15 54.660	6538.98	6884.27	983199.81
	4	79	801	84 37 12.180	-9 7 50.580	6537.98	6883.17	983198.69
	4	79	806	84 37 12.180	-9 7 50.580	6540.13	6885.44	983200.94
	4	79	1545	84 36 26.040	-9 9 6.000	6540.13	6885.44	983200.94
	4	79	2115	84 36 8.097	-9 10 47.630	6541.12	6886.48	983202.00
	4	79	2217	84 36 8.701	-9 10 38.992	6541.12	6886.48	983202.00
11	4	79	1210	84 35 57.056	-9 2 59.578	6541.58	6886.93	983202.44
11	4	79	1610	84 35 32.940	-8 58 6.780	6542.79	6888.20	983203.75
11	4	79	2359	84 34 38.760	-8 53 44.340	6543.61	6889.07	983204.63
12	4	79	638	84 34 4.061	-8 50 22.016	6545.83	6891.39	983206.94
12	4	79	2325	84 31 57.444	-8 45 6.578	6543.56	6890.00	983205.50
13	4	79	1130	84 29 57.528	-8 54 2.539	6541.01	6886.30	983201.81
14	4	79	1625	84 31 44.820	-9 16 5.280	6539.53	6884.73	983200.25
14	4	79	2104	84 31 41.400	-9 15 50.760	6538.51	6883.65	983199.19
15	4	79	1615	84 31 16.575	-9 15 23.524	6537.40	6882.47	983198.00
15	4	79	1741	84 31 17.509	-9 14 54.486	6538.60	6883.73	983199.25
16	4	79	34	84 31 12.240	-9 14 45.360	6537.90	6882.98	983198.50
16	4	79	651	84 31 8.884	-9 14 35.418	6539.00	6884.14	983199.69
16	4	79	1656	84 31 7.731	-9 14 59.512	6539.02	6884.16	983199.69
16	4	79	1710	84 31 7.731	-9 14 59.512	6539.02	6884.16	983199.69
16	4	79	2343	84 31 6.248	-9 14 36.736	6539.00	6884.14	983199.69
17	4	79	1444	84 31 8.115	-9 16 32.759	6538.00	6883.07	983198.63
17	4	79	1605	84 31 8.115	-9 16 32.759	6538.29	6883.37	983198.88
18	4	79	1236	84 31 24.540	-9 35 30.420	6536.00	6880.95	983196.50
19	4	79	847	84 30 25.928	-9 36 31.834	6535.25	6880.14	983195.69
19	4	79	1640	84 29 41.708	-9 37 20.627	6534.04	6878.87	983194.38
19	4	79	1732	84 29 41.708	-9 37 20.627	6534.50	6879.35	983194.88
19	4	79	2301	84 29 24.240	-9 35 37.287	6534.18	6879.01	983194.56
20	4	79	816	84 28 30.681	-9 31 57.355	6535.18	6880.06	983195.56
20	4	79	1213	84 27 56.898	-9 28 53.100	6537.00	6881.97	983197.50
20	4	79	2115	84 26 24.900	-9 16 31.260	6539.00	6884.08	983199.63
21	4	79	642	84 25 30.505	-9 8 8.919	6537.00	6881.95	983197.50
21	4	79	2010	84 23 24.932	-8 50 11.366	6531.61	6876.28	983191.81
22	4	79	29	84 22 59.333	-8 45 47.722	6530.00	6874.57	983190.06
22	4	79	1714	84 20 25.860	-8 27 35.520	6531.00	6875.63	983191.13
23	4	79	47	84 19 54.763	-8 22 28.888	6533.90	6878.66	983194.19
23	4	79	918	84 19 21.660	-8 19 45.000	6535.00	6879.82	983195.38
23	4	79	1645	84 19 3.180	-8 14 54.720	6536.00	6880.87	983196.38
23	4	79	2123	84 19 9.900	-8 14 40.860	6537.00	6881.92	983197.44
24	4	79	924	84 18 58.348	-8 13 23.066	6537.00	6881.90	983197.44
25	4	79	2300	84 17 51.057	-8 3 3.161	6536.00	6880.84	983196.38
26	4	79	658	84 17 40.455	-8 2 36.603	6534.00	6878.72	983194.25
27	4	79	1114	84 17 11.122	-7 57 42.139	6533.30	6877.97	983193.50
29	4	79	1139	84 16 0.150	-8 2 22.136	6530.00	6874.46	983190.00
30	4	79	113	84 14 35.281	-7 58 31.200	6532.00	6876.55	983192.06
30	4	79	1827	84 12 54.097	-7 56 54.362	6533.00	6877.60	983193.13
1	5	79	25	84 12 34.706	-7 57 7.972	6535.13	6879.84	983195.31
1	5	79	1528	84 10 54.895	-7 52 12.504	6537.00	6881.80	983197.31
1	5	79	1535	84 10 54.895	-7 52 12.504	6536.00	6880.75	983196.25
2	5	79	2124	84 10 3.973	-7 44 36.905	6534.50	6879.17	983194.69
2	5	79	648	84 8 29.601	-7 33 10.812	6529.00	6875.36	983188.88
2	5	79	925	84 7 59.498	-7 30 8.422	6530.70	6875.15	983190.69
2	5	79	2200	84 5 33.325	-7 16 17.282	6528.21	6872.53	983188.06
3	5	79	1232	84 2 31.007	-7 15 48.886	6529.00	6873.35	983188.88
4	5	79	1053	83 59 46.816	-7 13 4.826	6531.00	6875.44	983191.00
4	5	79	1525	83 59 27.206	-7 11 27.442	6535.53	6880.21	983195.75
4	5	79	1858	83 58 50.676	-7 4 54.444	6538.53	6883.37	983198.88
4	5	79	2205	83 58 22.881	-7 1 27.685	6540.00	6884.91	983200.44
5	5	79	247	83 57 47.450	-6 57 3.096	6542.95	6888.01	983203.50
5	5	79	1125	83 55 40.448	-6 58 58.621	6546.00	6891.22	983206.75

# RECALCULATED GRAVITY VALUES FOR FRAM I

DAY	MONTH	YEAR	TIME (GMT)	LATITUDE	LONGITUDE	COUNTER READING	CORRECTED MILLIGALS	ABSOLUTE GRAVITY
5	5	79	1400	83 55 18.091	-6 59 32.957	6544.00	6889.12	983204.63
5	5	79	1658	83 54 27.554	-7 0 26.711	6541.50	6886.48	983202.00
5	5	79	2033	83 53 23.998	-6 57 54.512	6540.50	6885.43	983200.94
5	5	79	2040	83 53 23.998	-6 57 54.512	6541.00	6885.96	983201.50
6	5	79	652	83 50 4.431	-6 54 59.215	6538.00	6882.78	983198.31
6	5	79	2215	83 44 51.595	-6 44 51.297	6545.10	6890.25	983205.75
7	5	79	118	83 43 24.034	-6 42 37.761	6551.00	6896.45	983212.00
7	5	79	257	83 43 18.651	-6 44 39.645	6554.00	6899.61	983215.13
7	5	79	646	83 41 35.160	-6 46 0.882	6558.00	6903.82	983219.38
7	5	79	1156	83 40 21.497	-6 48 54.884	6556.50	6902.24	983217.75
7	5	79	1310	83 40 21.497	-6 48 54.884	6548.00	6893.29	983208.81
8	5	79	1134	83 34 49.270	-6 48 9.511	6542.10	6887.07	983202.63
9	5	79	130	83 29 17.373	-6 39 1.039	6545.00	6890.10	983205.63
9	5	79	842	83 26 39.170	-6 42 2.475	6557.00	6902.74	983218.25
9	5	79	1022	83 26 11.375	-6 41 47.049	6560.23	6906.14	983221.69
9	5	79	1618	83 25 11.444	-6 43 30.836	6563.00	6909.06	983224.56
9	5	79	1638	83 25 2.545	-6 43 56.564	6561.04	6906.99	983222.50
10	5	79	112	83 24 48.593	-6 47 33.431	6559.00	6904.83	983220.38
10	5	79	913	83 23 42.565	-6 54 42.255	6559.00	6904.83	983220.38
10	5	79	1005	83 23 38.719	-6 55 18.733	6557.86	6903.63	983219.19
10	5	79	1320	83 23 10.758	-6 58 55.970	6554.01	6899.58	983215.13
10	5	79	2341	83 22 34.779	-7 1 19.150	6555.50	6901.15	983216.69
11	5	79	1152	83 22 13.960	-7 1 57.471	6556.50	6902.18	983217.69
12	5	79	1555	83 20 37.830	-6 51 57.299	6559.50	6905.33	983220.88
12	5	79	2230	83 20 20.911	-6 52 51.382	6560.56	6906.45	983222.00

# RECALCULATED GRAVITY VALUES FOR FRAM II

DAY	MONTH	YEAR	TIME (GMT)	LATITUDE	LONGITUDE	COUNTER READING	CORRECTED MILLIGALS	ABSOLUTE GRAVITY
31	3	80	1956			6551.52	6897.92	983215.00
31	3	80	2235			6551.36	6897.75	983214.81
1	4	80	57			6551.35	6897.76	983214.88
1	4	80	824			6551.29	6897.69	983214.75
1	4	80	1020	86 29	23. 635-21	50 50. 327	6551.43	6897.84
1	4	80	1830	86 29	23. 086-21	53 22. 144	6551.12	6897.51
3	4	80	950	86 24	29. 806-21	35 16. 434	6551.43	6897.88
4	4	80	1303	86 23	26. 144-21	1 36. 199	6549.75	6896.12
4	4	80	2341	86 23	10. 704-21	5 53. 430	6549.92	6896.30
5	4	80	946	86 23	11. 583-21	8 38. 719	6550.15	6896.56
5	4	80	1316	86 23	12. 353-21	11 18. 214	6550.30	6896.72
5	4	80	2330	86 23	29. 754-21	29 53. 230	6551.30	6897.77
6	4	80	1036	86 23	57. 286-21	52 31. 003	6551.25	6897.74
6	4	80	1822	86 24	13. 821-22	6 2. 453	6551.10	6897.58
6	4	80	2217	86 24	17. 227-22	9 16. 210	6550.85	6897.32
7	4	80	1039	86 24	34. 200-22	13 56. 197	6550.60	6897.08
7	4	80	1321	86 24	31. 838-22	13 43. 878	6550.57	6897.05
7	4	80	2142	86 24	30. 465-22	13 35. 913	6550.62	6896.72
8	4	80	857	86 24	21. 292-22	11 54. 606	6550.54	6897.03
8	4	80	1923	86 24	18. 924-22	13 5. 413	6550.60	6897.10
9	4	80	13	86 24	19. 314-22	11 32. 084	6550.65	6897.16
9	4	80	1053	86 24	14. 260-22	12 54. 811	6550.70	6897.21
9	4	80	1522	86 24	11. 514-22	12 33. 992	6550.50	6897.00
10	4	80	2130	86 24	9. 646-22	11 18. 736	6550.54	6897.04
10	4	80	1130	86 24	2. 999-22	13 43. 000	6550.58	6897.11
10	4	80	1930	86 24	3. 713-22	13 47. 696	6550.58	6897.11
11	4	80	2215	86 24	2. 725-22	13 1. 705	6550.76	6897.30
11	4	80	1040	86 24	1. 626-22	13 21. 439	6550.76	6897.32
11	4	80	1715	86 24	1. 022-22	12 11. 723	6550.75	6897.30
11	4	80	2356	86 24	1. 406-22	13 3. 243	6550.79	6897.35
12	4	80	1040	86 24	3. 439-22	14 2. 596	6550.79	6897.37
12	4	80	1712	86 24	2. 999-22	11 38. 250	6550.82	6897.40
12	4	80	2219	86 24	0. 527-22	13 13. 227	6550.85	6897.43
13	4	80	1105	86 24	0. 802-22	13 6. 745	6550.83	6897.43
13	4	80	2210	86 24	2. 230-22	12 22. 278	6550.81	6897.42
14	4	80	30	86 24	3. 713-22	11 43. 743	6550.75	6897.35
14	4	80	1040	86 24	3. 713-22	12 42. 946	6550.73	6897.35
14	4	80	1900	86 24	2. 063-22	11 16. 154	6550.73	6897.35
15	4	80	850	86 24	30. 470-22	43 17. 443	6550.55	6897.16
15	4	80	2023	86 24	49. 307-22	23 54. 897	6550.62	6897.24
16	4	80	953	86 24	52. 657-22	36 20. 374	6550.72	6897.36
16	4	80	1920	86 24	53. 042-22	37 45. 065	6550.74	6897.38
16	4	80	2330	86 24	47. 549-22	37 44. 708	6550.79	6897.44
17	4	80	1135	86 24	26. 620-22	40 7. 942	6550.85	6897.52
17	4	80	1956	86 23	53. 002-22	34 14. 073	6550.90	6897.57
17	4	80	2356	86 23	30. 040-22	30 33. 316	6550.88	6897.55
18	4	80	1146	86 19	16. 311-24	7 6. 572	6550.98	6897.63
18	4	80	1756	86 17	2. 003-24	10 34. 063	6552.87	6899.67
18	4	80	2227	86 14	57. 748-24	21 38. 351	6553.62	6900.49
19	4	80	1145	86 10	25. 946-24	40 16. 580	6552.91	6899.72
19	4	80	1640	86 9	23. 928-24	48 42. 198	6552.27	6899.05
19	4	80	1819	86 9	7. 119-24	49 59. 171	6551.09	6897.80
20	4	80	1230	86 7	10. 280-24	52 17. 434	6548.25	6894.20
20	4	80	1910	86 7	8. 302-24	50 48. 967	6548.32	6894.88
21	4	80	1337	86 6	38. 914-24	44 52. 735	6548.44	6895.05
21	4	80	2045	86 5	51. 563-24	47 54. 504	6546.90	6893.43
22	4	80	112	86 4	39. 313-24	48 25. 444	6546.24	6892.76
22	4	80	1129	86 4	25. 375-24	50 53. 760	6543.68	6890.06
22	4	80	1742	86 3	49. 175-24	52 18. 794	6542.11	6888.41
22	4	80	2229	86 2	49. 189-24	51 2. 727	6540.84	6887.07
23	4	80	1150	86 1	0. 809-24	47 27. 684	6536.10	6882.10
23	4	80	1805	85 59	22. 646-24	46 16. 973	6534.90	6880.83
23	4	80	2050	85 59	5. 618-24	50 54. 597	6533.70	6879.57
23	4	80	2339	85 59	5. 618-24	50 54. 597	6533.10	6878.94
24	4	80	1025	85 57	3. 560-24	54 0. 994	6530.42	6876.14
24	4	80	1219	85 57	3. 560-24	54 0. 994	6529.98	6875.66

# RECALCULATED GRAVITY VALUES FOR FRAM II

DAY	MONTH	YEAR	TIME (GMT)	LATITUDE	LONGITUDE	COUNTER READING	CORRECTED MILLIGALS	ABSOLUTE GRAVITY
24	4	80	1626 85 56	21. 427-24	55 7. 489	6528. 66	6874. 28	983191. 38
24	4	80	2037 85 55	50. 061-24	54 25. 192	6527. 00	6872. 53	983189. 63
25	4	80	1203 85 53	14. 165-24	50 46. 371	6521. 60	6866. 86	983183. 94
25	4	80	1618 85 52	23. 958-24	48 43. 228	6518. 67	6863. 77	983180. 88
25	4	80	2218 85 50	27. 502-24	43 7. 143	6516. 33	6861. 31	983178. 38
26	4	80	1350 85 47	10. 188-24	24 25. 178	6514. 20	6859. 08	983176. 19
26	4	80	1859 85 46	37. 943-24	19 30. 401	6513. 43	6858. 29	983175. 38
26	4	80	2208 85 46	18. 003-24	16 5. 616	6512. 78	6857. 59	983174. 69
27	4	80	55 85 46	10. 313-24	14 37. 368	6513. 04	6857. 88	983175. 00
27	4	80	1322 85 46	3. 336-24	12 6. 897	6513. 04	6857. 88	983175. 00
27	4	80	1730 85 46	3. 995-24	13 20. 409	6513. 01	6857. 85	983174. 94
28	4	80	1346 85 46	12. 125-24	14 18. 430	6513. 06	6857. 92	983175. 00
28	4	80	2129 85 47	0. 136-24	17 16. 697	6514. 01	6858. 92	983175. 00
28	4	80	2315 85 47	12. 275-24	20 5. 557	6514. 21	6859. 13	983176. 25
29	4	80	1538 85 50	9. 210-24	29 54. 273	6516. 50	6861. 57	983178. 69
29	4	80	1904 85 51	0. 077-24	33 13. 181	6517. 31	6862. 42	983179. 50
29	4	80	2320 85 51	26. 664-24	36 13. 412	6518. 11	6863. 25	983180. 38
30	4	80	1210 85 52	41. 700-24	44 23. 963	6520. 58	6865. 88	983183. 00
30	4	80	2128 85 53	17. 021-24	55 47. 603	6522. 03	6867. 41	983184. 50
1	5	80	1537 85 54	8. 438-25	7 23. 175	6522. 85	6868. 28	983185. 38
2	5	80	518 85 52	43. 239-25	5 45. 946	6519. 01	6864. 26	983181. 38

Seismic Reflection - (Ruth Jackson, Atlantic Geoscience Centre)

A seismic reflection profiling system was in operation from April 11, 1981, (day 102) to May 5, 1981, (day 126). The track includes a transect along a portion of the Nansen Basin and the Yermak Plateau. The sparker system was modified from shipboard use to meet the requirements of an ice station.

An EG&G sparker of 9000 joules was the power source. The transducer was a standard EG&G 7 mm coated copper electrode with a hairpin ground loop 30 cm across by 45 cm long suspended at 9 m depth. The capacitor banks, power and control unit were ground to each other and directly to sea water. The system fired every five minutes. The charging rate was modified to occur during the five minute interval so that the power requirement for firing the system was only 5 amps at 100 volts. The receiving system used about 5 amps at 110 volts also, so the reflection system did not put an excessive load on the ice camp generator.

Both the transducer and the receiver were suspended in the water through the same hydrohole. The receiving system consisted of a U.S. Navy XU133 series hydrophone, with a flat response from 20Hz to 1 kHz, suspended at 50 m depth. The hydrophone signal was sent through a high-low pass Kronhite filter, an Ortec amplifier and displayed on electrosensitive dry paper Raytheon LSR recorder. The timing and triggering came from an Atlantic Geoscience Centre designed and built unit. The Raytheon was generally used on a 1 second sweep and delay varied with water depth.

FRAM III

00T

5.4 sec. delay | sec. sweep  
0000/101

5.2 sec. delay

1115/102

0035/103

0850/104

2 sec. sweep

TOT

0000/105

5.2 sec. delay

1 sec. sweep

0840/106

O.B.S. LINE I

0025/107

0025/108

4.3 sec. delay

4.8 sec. delay

0000/100

4.5 sec. delay

CORE no. 1

0000/110

HEAT FLOW no. 1

0050/111

3.0 sec. delay

CORE no. 2

0025/112

HEAT FLOW

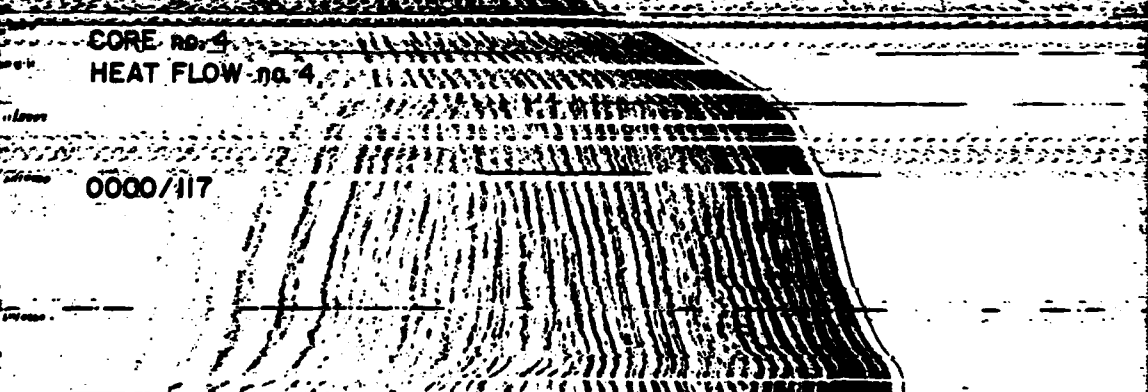
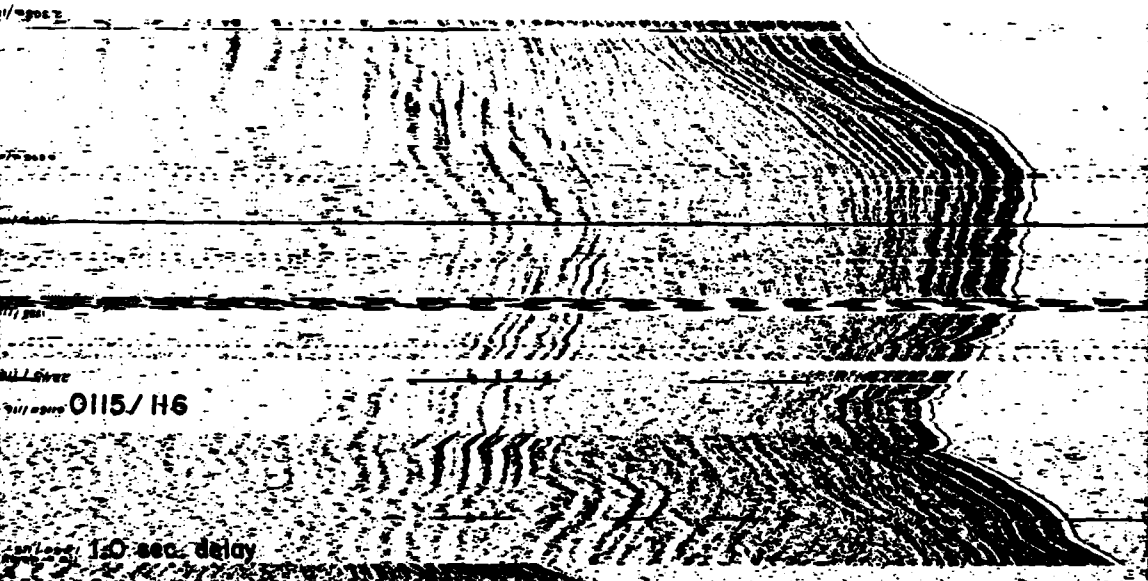
2.5 sec. delay

3.0 sec. delay





O.B.S. LINE 2



CORE no.5

HEAT FLOW no.5

0000/118

0830/119

CORE no.6

HEAT FLOW no.6

0930/120

CORE no.7

HEAT FLOW no.7

0000/121

O.B.S. LINE-3

50T

0.8 sec. delay

0900/122

CORE no. 8  
HEAT FLOW no. 8

1000/123

O.B.S. LINE 4

O.B.S. LINE 5

0010/124

0930/125

2310/125

## References

- Allen, B., J. Ardai, K. Hunkins, T. Lee, T.O. Manley and W. Tiemann, Observations of position, ocean depths, and gravity taken from the Fram II and Camp I drifting ice stations, CU-13-80, Tech. Rpt. No. 13, Lamont-Doherty Geological Observatory, Palisades, N.Y. , Aug. 1980.
- Hunkins, K., T. Manley and W. Tiemann, Observations of position, ocean depth, ice rotation, magnetic declination and gravity taken at the Fram I drifting ice station. CU-1-79, Tech. Rpt. No. 1, Lamont-Doherty Geological Observatory, Palisades, N. Y., Sept. 1979.
- Matthews, D.J., Tables of the velocity of sound in pure water and sea water for use in echo-sounding and sound-ranging, Hydrographic Dept., Admiralty, London, 1939.
- Thorndike, A.S. and T.O. Manley, 1980, Updated Postion and Ice Velocity for the AIDJEX Manned Camps, Vol. 1, 11 April to 17 October, 1975, CU-2-80. Tech. Rpt. No. 2, Lamont-Doherty Geological Observatory, Palisades, N. Y.
- Thorndike, A.S. and T.O. Manley, 1980. Updated Position and Ice Velocities Measurements for the AIDJEX Manned Camps, Vol. 2, 18 October 1975 to 4 May 1976. CU-3-80, Tech. Rpt. No. 3, Lamont-Doherty Geological Observatory, Palisades, N. Y.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  A scientific research camp was established on a drifting ice floe north of Spitsbergen on March 14, 1981, and occupied until May 13, 1981, while the floe drifted 361 km southwest- ward. Position of the camp was monitored with a satellite navigation system. Ocean depth was sounded continuously during the drift as the camp crossed from the Fram Basin onto the Yermak Plateau. Rotation of the ice floe, magnetic		

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declination and gravity were all measured frequently. Sub-bottom geological horizons were profiled with air-gun and seismic reflection system. Data from all of these measurements are presented in the form of tables and profiles.

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